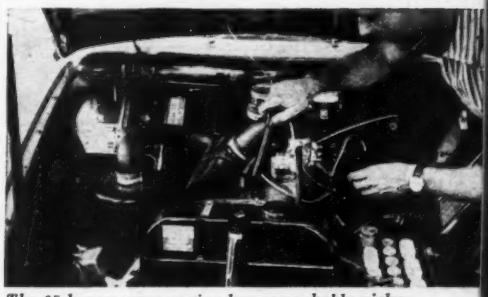
HOW
SUE
IND
Motor Trend
JANUARY 1960 35c
2500-MILE TESTS
CORVAIR • FALCON • VALIAN

"HILL" T / PEUGEOT 403

Fully instrumented dashboard includes gas and temperature gauges, and an oil pressure gauge light.



The 65 horsepower engine has remarkable pickup . . . delivers 30 mpg on regular gas.

The separate front seats have a three-position reclining mechanism.

"BETWEEN RACES YOU CAN'T BEAT A PEUGEOT 403"

by Phil Hill

"Ever since I started racing, people have been asking me what kind of car I drive. I imagine they picture me tearing about Europe from race to race in a very glamorous, very fast sports car. They seem surprised when I tell them that as much as I love the world of Sports and Grand Prix cars, I want my normal highway driving to be quick and relaxed. Decidedly so, in fact. And that's one of the reasons I like a Peugeot '403'.

"I like the '403's compact size. It's equally at home on winding Alpine roads, broad highways and narrow French village streets. And it's big enough to carry five or six passengers plus all their luggage—the trunk is really large by any standards. Driving the Peugeot '403' is safe and comfortable. But—and this is interesting—it also has a wonderful combination of riding and handling qualities.

"Another reason I grab a Peugeot whenever I can is the quiet way it performs. Of course, I'm used to 4 and 5 speed machines that require continuous shifting to get the most out of them. But in the Peugeot you drive it just like a 3-speed American car. Then when you get rolling on the road you pop it into overdrive and literally coast along. It's plenty fast enough for me—I'm scared to death to ride with another driver anyway because they always seem to drive like maniacs—just to see what I'll say. (Which is un-printable)

"The final drive on a Peugeot '403' uses the worm and wheel principle (so far as I know, this is the first time this principle has been seen in America since the Stutz of the early '30's). This gives the car a very low center of gravity and eliminates 'floor board hump.' The '403' corners very nicely. At 60 mph, you can set up a turn and let the car track around the curve. The Peugeot has neutral steering. Well, almost. Actually it requires so little force you hardly notice it.

"The Michelin X tires also contribute to the Peugeot's roadability. They stick to the road when cornering yet do not adversely affect the steering.

"This car has dignity. No gimmicky stuff—just good clean lines. I dislike an ostentatious car. The 'unquestioned quality' of the Peugeot '403' (it is really very conservative) is much more to my liking.

"Finally there's the reputation of the marque (the Societe Anonyme des Automobiles Peugeot is celebrating its 70th anniversary this year). There's no car in Europe, even at twice the price, that has a better reputation for reliability, long life and just plain honest quality.

"There's only one little thing I do not like about the '403'. Its ignition lock is sometimes hard to find. Other than that I have no complaints, and lots of hurrahs. I can see why the Peugeot '403' is selling well in the States. This is a fantastic car!"

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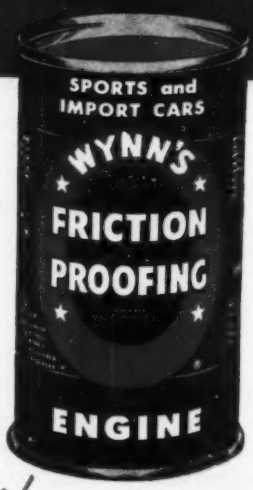

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COVER: We take a roving glance around the world and bring into focus a few of the '60 models and components thereof. How many can you identify? To test the eagle eye of our readers, we will give a 1-year subscription to MOTOR TREND to the first 25 who accurately identify all the photos on the cover.

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Motor Trend

"THE AUTOMOTIVE TESTING MAGAZINE"

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Letters FROM OUR READERS

FIRST IMPACT OF THE COMPACTS

Dear Sir:

When I compared the Ford Falcon and the Chevrolet Corvair in the flesh I was very much disappointed with the Corvair and very much pleased with the Falcon.

The Corvair's quality and quality control were poor in the models I saw. With one hand I could squeeze the presumably solid metal of the front doorsill in an inch! In the design of their engine they made one serious blunder—the people who supply Corvair owners with fan belts will become

very rich. Two 90-degree turns and two 360-degree turns are too much for any flexible connection at the speeds at which they will be operating.

The Falcon, on the other hand, is a very well-put-together, comfortable, stylish, sensible automobile.

Dean Peters Saskatoon, Sask., Canada

We appreciate this anxiety about the Corvair's fan belt and know of people who have already thrown or broken these belts. However, this type of application has been used for many years on machine tools and other high-speed power equipment. It is trouble-free provided all of the pulleys are of the proper dimensions and alignment.—Editors.

Dear Sirs:

I was one who believed that in automobiles sleek, modern styling and relatively large size went hand-in-hand. However, after seeing the Corvair, I no longer hold this opinion.

The two styling features which I think contribute the most to the attractive overall appearance of the car are: 1) the flat, parasol roof similar to the one introduced on GM's four-door hardtops last year; and 2) the crease in the metal, just below the belt line, which completely encircles the body. I was glad to see the familiar four headlights in front, and since there are four lights in the rear, the car has a balanced look from front to rear.

"A Motor Trend Fan" Marion, Ohio

Dear Sirs:

Why must General Motors claim they have something outstanding in their Corvair? An engine in the rear may be new in U.S. cars, but in the world auto picture, it certainly is not.

With all the great claims GM makes about its rear-engined buy, why don't they stick the engines in their Pontiacs, Oldsmobiles, Buicks and Cadillacs in the back?

Ray Bishop Perkasie, Pa.

At least one of the makes you've mentioned will have the engine in the rear of their new compact car.—Editor.

Gentlemen:

Here are my personal reactions to the three new compacts:

Corvair—Too high-priced for size and quality. Too low and too austere-appearing. Wheels too small. Dislike louvers on engine hood.

Falcon—Best-looking of the little cars. Construction seems to be best of the three. Wheels too small. Dislike unit construction.

Valiant—Dislike trunk door styling, European-looking wheels. Why change to AC generators to complicate things—what's wrong with the old electrical system?

John Kulik Cicero, Ill.

Dear Sirs:

I'll still stick to the Rambler—if for no other reason than to have the shift lever where it belongs, on the steering column. With the lever on the floor, no car is truly a six-passenger car.

And how can a car be an economy car if it's heated with gasoline? Water's free!

E. F. Schlist Blossvale, N. Y.

WHO SAYS WE'RE TRAITORS?

Dear Sir:

When I read the letter by Anthony Elia in your October issue I started a slow burn.

Sure we buy some foreign-make cars. I am in the U.S. Army and I have had a

chance to drive some of the European cars. They are better on gasoline, have better performance and most are just as comfortable as our American sportsters.

I and my comrades-in-arms like foreign-make cars, and as long as we wear this uniform we certainly don't feel like "traitors" to our country or American civilians.

If our country's backbone is weakened by the purchase of foreign cars, then it is the automobile manufacturers' fault for not producing the type of automobile that we traitors want and can afford.

SP4 Jerry V. Swader U.S. Army, Europe

Gentlemen:

These foreign cars have all been subjected to American import duty charges. In essence they meet American approval.

Most Americans would have bypassed these foreign cars had the automobile industry here seen fit to give us what we wanted. We know American industry can produce just as good, and even better things than foreign industry can—but to make them do this, we must resort to buying foreign cars and products from time to time.

J. A. Milteer Quitman, Ga.

Dear Sir:

I wonder if your correspondent realizes

continued on page 9

Pure Automobile

the all-new ones from Chrysler Corporation for 1960

Surrounds you with silent strength

Unibody construction gives twice the torsional strength and 40% more beam strength

Here is a family of cars built a whole new way—the 1960 cars from Chrysler Corporation. We call this new construction Unibody because body and frame have been designed into a single, solid unit.

Gone is the old concept of a body and a frame held together with nuts and bolts. In the 1960 cars from Chrysler Corporation the new, all-welded body gives you a car with twice the torsional strength and 40% more beam strength than cars made the old way.

And also gone, with the nuts and bolts, are a surprising number of squeaks and rattles. These cars ride so quietly they sound and feel like they're going 10 miles per hour slower than they are.

Pure automobile—built stronger to last longer. And styled in quiet good taste to look good longer, too. Simple facts that mean these cars will bring many dollars more whenever they're sold or traded.

Stop in soon at your neighborhood dealer's and get acquainted with the all-new ones for 1960. Let a drive bring out the difference great engineering makes.

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It has everything a sports car ought to have! The full sweep of clean, clear lines. Comfort. Roll-up windows. Full-size doors. Wrap-around windshield. Removable hardtop.* Room. Jump seat for kids or extra luggage. A rally-bred sports car engine. Powerful performance. Tremendous acceleration. Superb safety disc brakes. Road-hugging balance. See the newest and neatest look in sports cars — the all-weather design of the Sunbeam Alpine. Test-drive the Sunbeam Alpine at your Hillman/Sunbeam dealers, now! *Optional, extra.

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SPECIFICATIONS OF THE SUNBEAM ALPINE

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Compression	9.2:1
Displacement	1,494 c.c.
Cylinders	4
B.H.P.	83.5 @ 5,300 r.p.m.
Wheelbase	86 in.
Overall length	155.25 in.
Overall width	60.5 in.
Overall height	51.5 in.
Ground clearance	5½ in.
Turning circle	34 ft.
Weight—dry	2082 lbs.

Twin Zenith downdraft carburetors, inclined overhead valves, wedge-shaped combustion chambers, aluminum cylinder head for higher thermal efficiency, special cross-flow radiator with separate expansion tank.

Transmission (Synchromesh on top 3 speeds) 4 close-ratio forward speeds, center floor gear shift.

Rear axle	Hypoid 3.9:1
Brakes, front	Girling 9.5" disc
Brakes, rear	9.0" drum

Suspension, front. Independent coil springs, anti-roll bar

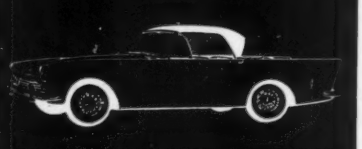
Suspension, rear. Semi-elliptic with telescopic hydraulic shock absorbers

Chassis. X-braced single unit construction. Torsion-bar sway eliminator

Electric. 12-volt. Battery housed under rear seat to balance between axle mass and reduce evaporation

Lubrication. Full pressure, full-flow filter

Fully instrumented dashboard—including tachometer, pressed steel disc wheels (wire wheels extra), center armrest conceals large lockable glove box, concealed retractable top (or hardtop—available as extra), wrap-around bumpers with overriders, large luggage compartment.



continued from page 6

that thousands of United States citizens earn their daily bread by producing goods, both manufactured and agricultural products, for export. And the only way foreign countries can pay for the U.S. goods they import is to export some of their products to the United States.

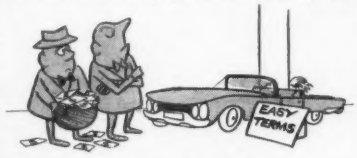
It is well known by economists that prosperity is greatest when there is a free exchange of goods.

Arthur Hambleton London, Ont., Canada

NOW I KNOW!

Gentlemen:

I have been buying cars since 1908, and



with the exception of the first one have always paid cash.

Your article, "Bargain for Your Interest" (Nov. MT), is extremely interesting and answers some of my questions as to why I have received so many brush-offs and lack of interest when I buy a new car.

H. P. Boak Denver, Colo.

MORE NAMES FOR COMPACTS

Editor:

I wonder if Ford, General Motors or Chrysler would be interested in "cameo car" as a name for their new compacts. The word has the connotations of smallness, gemlike quality and fine workmanship.

John H. Randall III Wellesley, Mass.

Editor:

Why not the coined word, "spaceficient"?

Also, why doesn't some manufacturer name his small car "The Hummingbird"?

They have qualities that suggest darting and hovering in traffic.

Homer A. Frost Tucson, Ariz.

Gentlemen:

What with all the space probes and the like—and the comparison of usable space in the regular-size car and the small car showing very little difference—why not call it the "Space Car"? They have the space—they park in a small space.

J. Sedlack Garland, Tex.

WHY DOESN'T DETROIT?

Gentlemen:

Why don't automobile manufacturers include among their accessories two sizes of trailer hitches, one for up to a 500- or 600-lb. weight and another for heavier loads?

My 1958 Plymouth couldn't take a bumper hitch in the center because the bumper was too close to the body. My 1959 Ford has a thin section in the middle of the bumper. I gave up after adapting a Rube Goldberg hitch to a '57 Dodge that took a mechanic and me three hours of blood and sweat to install.

Ray White Haddenfield, N.J.

See PAGE 20 FOR FREE LITTER BAGS

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6-oz. aerosol, can..... $1.00

12 cans for..... $8.40

Sent prepaid. Add state sales tax where same applies.

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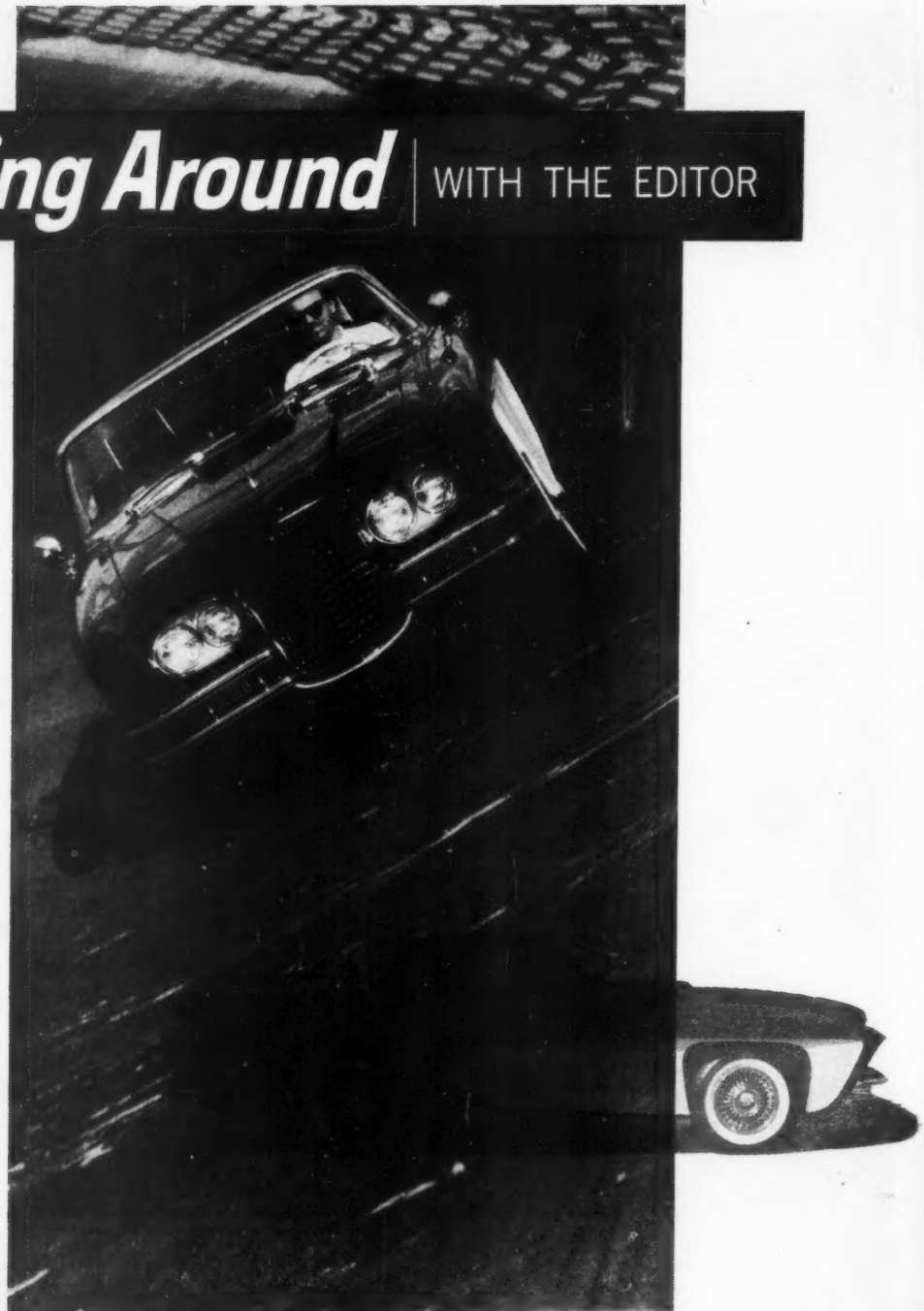
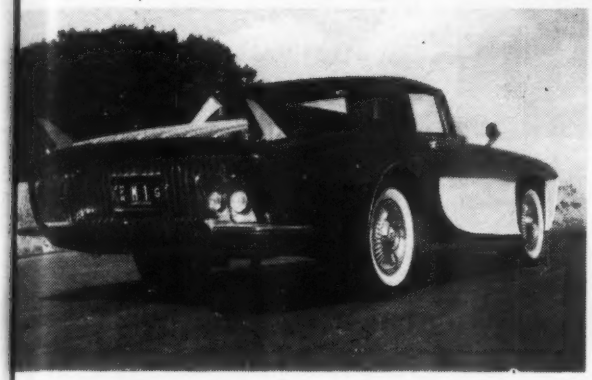
Driving Around | WITH THE EDITOR

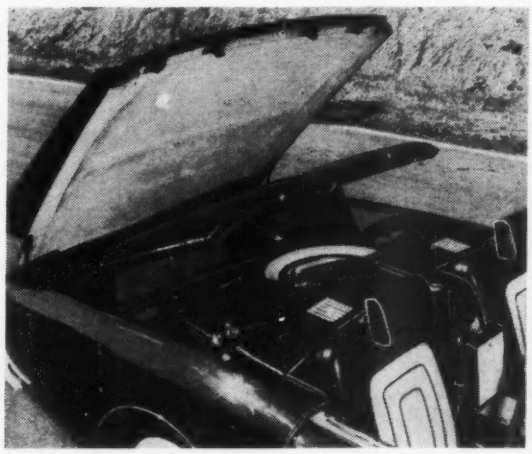


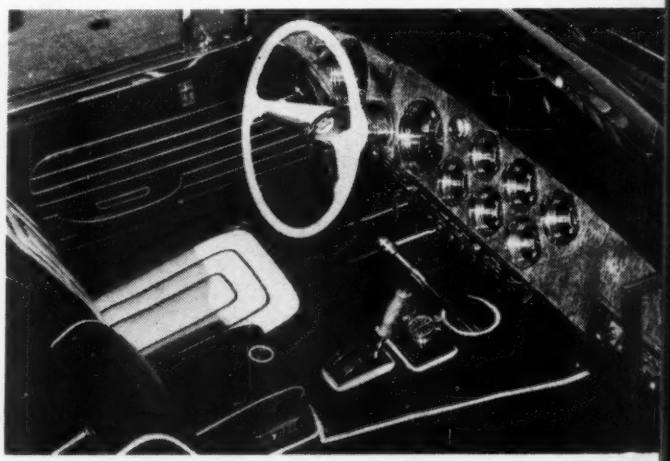
HOW DOES IT FEEL to drive a car that's taken someone years to build, that's cost untold thousands of dollars to produce, and that has so many luxury features it staggers the imagination? Scary—that's how! What if I'd cracked it up taking it around the Meadowdale Road Race Course? I'd have been in hock for the next 99 years.

The car I'm speaking of is the personal project of the Gaylord brothers, Jim and Ed. Though it may never be put into production, at the time it was developed it had features not seen or used on Detroit cars. With only a 100-in. wheelbase it has a marvelous ride, has on-off power steering and a retractable top. It's an exceedingly interesting car.



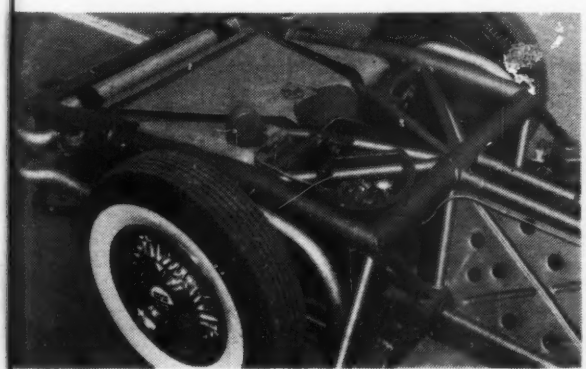
The chrome rails on the top of the rear deck are for strapping on extra luggage, should you need more than the fitted luggage provided inside. To remove your spare, you punch a button inside and the door slowly folds down by means of an air cylinder. You reach inside, grab hold of a cradle the tire is resting on and pull it out: the tire slides on a track. The "rubstrips" on the door are made from solid brass pieces and are heavily chromeplated.

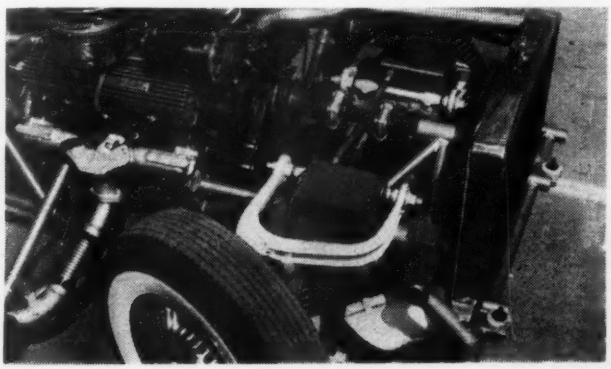




To operate the retractable top, you punch a button on the dash, the decklid opens, the top slides back on rails and down into the trunk, then the lid closes; or, you can just open the trunk to get at the fitted luggage. It operates electrically. Shown here also are the adjustable headrests for each of the seats.

The dash, of rare Siamese wood, has all the usual instruments, plus controls for everything from air conditioning to lights at the wheels so you can see to repair a flat. On the tunnel: handgrip automatic transmission lever, fly-off brake, electric window controls, a stop watch. Seats are 6-way adjustable.





The frame of the Gaylord is extremely rugged, weighs 230 lbs. There are no grease points. That's a 40-gal. tank with two electric pumps that cut in when the normal pump gets hot. Suspension is by long leaves, covered with leather. No hubcaps are used—those are actual wheels.

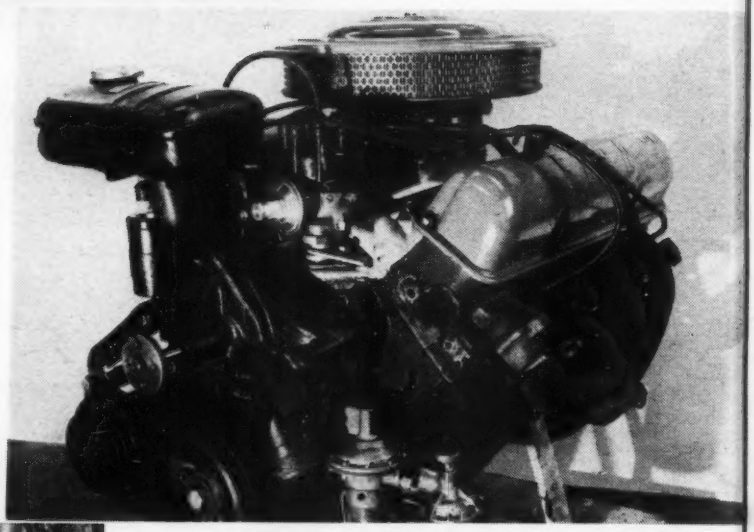
The '57 Cadillac engine is set well back of the front wheels; the fan drive is flexible. The driveshaft coupling is metal over plastic over metal. Front suspension is by huge upper A-arm, coil spring (with variable rate air bag inside) and adjustable trailing arm.

Detroit NEWS AND VIEWS

by Bill Callahan
Detroit Editor

FLAMING FORD FOR '60!

New power equipment available for Ford engines converts them into real high-performance powerplants. The heads, manifolds, headers, cams, valve springs, cam followers, pushrods, dual-point distributor convert the stock 352 engine into a potent 360-hp package, known as the "352 Special 4-V." Best news of all is that these factory production units will not only fit the 332-cu.-in. engine, but the 1958 and '59 engines as well. The parts are available from Ford dealers for modifying existing engines or can be ordered as an option on new cars for about $125, installed at factory.



THE DIE IS CAST: ALUMINUM

Centr-O-Cast and Engineering Co., of Detroit, in cooperation with the technical assistance of the Reynolds Metal Co., have completed exhaustive tests on a cast-aluminum muffler. The new muffler (center) is expected to outlast the life of the car.

COMPACT CAR TURBINE?

Designer Sam Williams examines vanes of his 75-lb. gas turbine engine. More details on page 14.

THE RUMOR MILL

Ford Company is planning to use a single unit light on its 1961 cars. False. This design may show up in a special dream car in the near future, but not in a production model. Dream car ideas, however, frequently are used later in production. . . . Aluminum water-cooled engines will be introduced certainly in some 1961 GM lines. Possible, but not probable. GM some time ago stated that it had perfected a water-cooled aluminum engine, but also pointed out that some corrosion problems still had to be overcome. There is also the problem of retooling, which would entail gigantic cost. . . . Aluminum or stainless steel mufflers may be offered in 1961 cars. Possible. Both types of materials have been proven good for such service. If cost can be kept in line, either type material would be used. . . . Aluminum radiators are just around the corner. True. Recent designs that would lend themselves to fabrication in aluminum have recently been developed. Tests show good promise so far as internal corrosion factors are concerned. . . . Aircooled engines will soon replace the water-cooled jobs in automobiles. Not yet. If the Corvair fuel fix proves a howling success there undoubtedly will be more in the future, though there is no reason to expect a quick switch by all makers. . . .

COMPACTS ARE COMING! SEE PAGE 78 . . .

FOR THOSE WHO LIKE REAL ROAD MACHINERY MINUS THE TINSEL

Pontiac's Fresh-Point-of-View styling was the first thing to catch the fancy of the real bugs on car beauty. A classic, custom look, they're saying, with no monkey-business.

There was no dust on the drawing board where this baby was born. Its looks have already prompted some to say that the sharpest custom of the year came straight out of Pontiac.

And everyone's saying Pontiac has the last word in handling. Pontiac's exclusive Wide-Track Wheel Design . . . truest improvement in travel . . . is now more road-trained than ever by new improvements in suspension.

In fact, the more you know about cars, the more likely it is that you'll be talking business with your Pontiac dealer soon.

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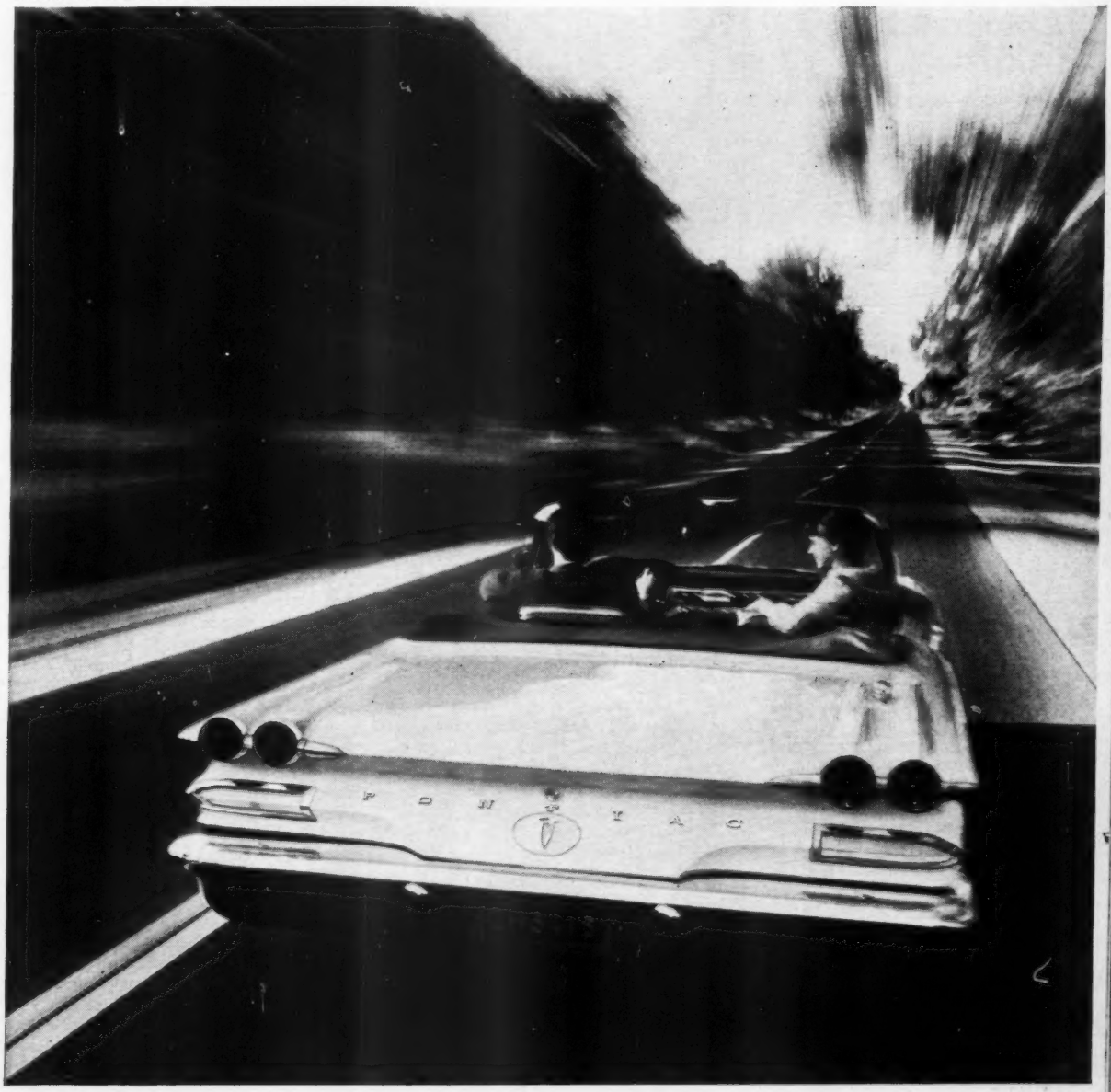

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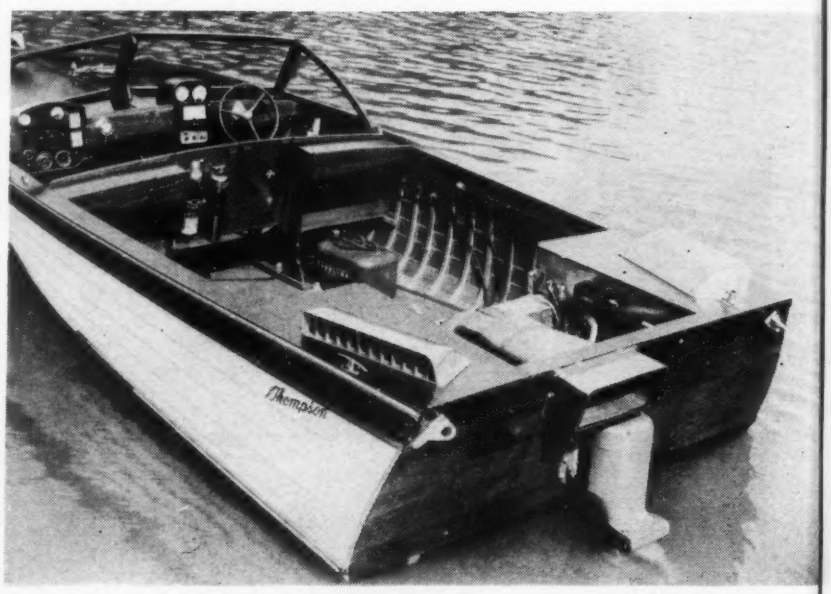
WHY NOT A Turbine IN COMPACTS?



75-hp gas turbine-powered test boat suggests things-to-come for Detroit compacts.

HOW WOULD YOU LIKE to drive into tomorrow's service station, select your choice of kerosene, aviation jet fuel, marine or automotive diesel gas or straight gasoline in a car whose engine develops one horsepower per pound of its own weight (total 75), then whisk away at 58,500 rpm with no more sound than a breeze through the trees?

This unusual prospect could become a reality if the aims and efforts of the Williams Research Corp., of Walled Lake, Mich. continue as planned. The first light, economical and compact—about the size of an ordinary breadbox—medium-hp gas turbine engine using a heat-exchange principle has been developed for a wide variety of uses, according to Sam Williams, president of the company. The 75-hp prototype has been built, and run successfully on the Detroit River (photo above) during 15 months of rugged testing.

Williams, a 38-year-old research engineer, emphasized that the specialized costly production facilities for larger aircraft turbines are not applicable to this one. He asserts: "This could easily be an answer for the small type cars now being produced by the American auto industry. Where space and weight are at a premium, it certainly solves the problem for compactness and lightness, and is about one-third the weight per horsepower of other gas turbines with heat exchangers." The Williams "breadbox" employs a new type of exchanger which uses exhaust heat by reintroducing it into the engine. In effect, it is partially powered by its own waste, with an ultimate exhaust cool enough to touch with the bare hand. Because of the absence of power impulses and reciprocating pistons, it is virtually vibrationless, and with well-baffled air intakes there is a complete absence of the piercing high-frequency whine associated with an aviation turbo-jet. More than half of the turbine is made of aluminum alloys.

VELVET GLOVE OR MALE FIST...

Drive as you will. But remember this; the 300 SL cam "kicks in" with a tremendous wallop at over 4000 rpm. Beneath this line of demarcation you have a gentle automobile submissive in fourth even as low as 750 rpm. Above it, you have a surge of asphalt-shredding power. Drive as you will, the Mercedes-Benz 300 SL Roadster is in tune to the touch of your toes, and the feel of your fingers on the gear shift ... man or woman!

Mercedes-Benz Sales, Inc. *(a subsidiary of Studebaker-Packard Corporation)*
SOUTH BEND 27, INDIANA

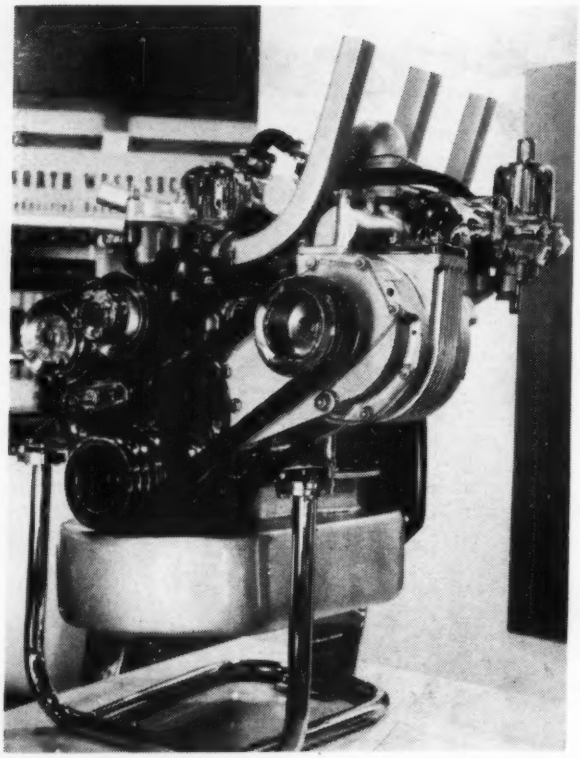
Overseas NEWS REPORTS

by Motor Trend's Overseas Correspondents

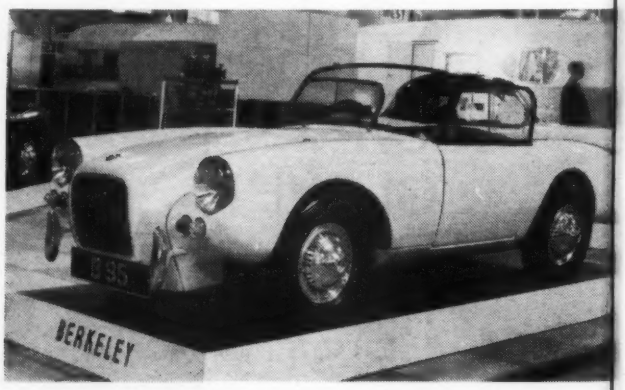
Among new models at the Earls Court Motor Show was this handsomely styled A.C. Greyhound sedan. A 2-door 4-seater, it had elegant lines generally similar to the Aceca coupe. Suspension is all-independent but completely different from the normal A.C.'s. At front are double wishbones and coils, at rear diagonally pivoted wishbones and coils. Disc brakes at front and Alfins at rear give ample stopping power for choice of 2- or 2.2-liter Bristol engines. Streamlined aluminum body keeps weight under a ton so that acceleration and top speed are outstanding.

The Triumph Estate Wagon has a longer look this year, largely due to hooded headlights and restyled grille. Some of the features which have made it popular in the U.S. are fuel economy up to 40 mpg, fold-down rear seat and large rear door.

Smaller version of Germany's Ford Taunus is this 12-M. Power is from 4-cyl. 1172cc engine developing 38 hp at 4250 rpm.



Record-breaking engine pushed streamlined Austin-Healey Sprite to 146.95 mph at Bonneville Salt Flats late in 1959. Shorrock blower helped produce 86 bhp from 948cc at 6000 rpm. Block, head, crank were standard; pistons, valves were special.



Berkeley B-95 is latest in succession of diminutive fiberglass-bodied sportscars from England. With 2-cyl. 4-cycle Royal Enfield motorcycle engine developing 40 bhp from 692cc, car will do 100 mph. Front-wheel drive aids cornering ability.

WHO "SPOTTED" THE LARK WITH RUBBER?

The Studebaker engineering, design and sales departments did it. The latter believes it easier to sell a quiet, squeak-free car. And that's just what they have. The Lark is literally spotted with over 300 live rubber cushions, grommets, bushings and seals strategically positioned throughout the body and chassis to reduce noise, damp vibration and eliminate the troublesome wear of metal-to-metal contacts. This is illustrative of the very high premium Studebaker places on detail, quality and sound engineering practice. These are not idle words because after about one billion cumulative road miles of owner use, Studebaker-Packard corporate figures clearly show that Lark repair and maintenance costs are well below the automobile industry average. Not only does The Lark save for you, but it performs for you . . . day after day, year after year. See your Studebaker Dealer and enjoy a Lark demonstration. And you don't have to count the cushions, grommets and bushings. When you drive the car, you'll know they're there.

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(and women, too)
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New PRODUCTS AND IDEAS

CORVAIR GRILLE

Some people like the blunt look of the Corvair's nose, but on the other hand, there are those who prefer the appearance of the conventional grille.

A very good-looking package that bolts

on to the front of the new Corvair makes it look front-engined. Basically in horizontal motif, the car appears wider and lower. Priced at $19.95. Write to C-T Automotive, 7253 Lankershim Blvd., North Hollywood, Calif.

CAR LITTER BAG

Next time you stop in for fuel, ask the man to give you a litter bag for your car. They're free—compliments of Dri-Powr. You don't have to buy a can to get the bag, but if your machine has problems that could be helped by their products, it might be a good time to try a can. They're on sale—and the bags are free—at most service stations.

TASTEFUL CUSTOMS

We've always wondered why the beautiful lines of the Cadillac were marred by those huge fins. We've also wondered what the car would look like if they were cut off. The president of Cadillac Steel Products had the same thoughts and decided to find out.

He was so happy with the results of the de-finning that he decided to offer the service at either of his two plants: 2148 E. Slauson Ave., Huntington Park, Calif. and 7447 S. Aubin St., Detroit, Mich. It's called the Sabre Custom. If you're interested, write direct.

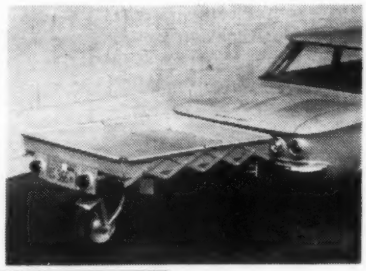
continued on page 20

SMALL-CAR SMALL TRAILER

We had occasion to assemble and play with a very interesting new product —thanks to the good offices of Ed Hall, who dropped off a Fold-N-Roll trailer for our inspection.

Small imports with limited stowage space have been around for a long time, but now they've been joined by domestic products with the same deficiencies. The trailers are now available for the new Corvair, Falcon and Valiant, as well as for small imports and the big cars.

Each trailer can be completely folded to ride like an old-time luggage rack when not in use, and easily dropped to handle up to 500 lbs. without overloading rear springs or upsetting delicate suspension geometry. For info, write to Award Mfg. Co., 660 W. 17th St., Costa Mesa, Calif.



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PANHARD	11	15.5
LLOYD 600	9	13.5
SKODA	7	10.5
FORD ANGLIA	1	1.5
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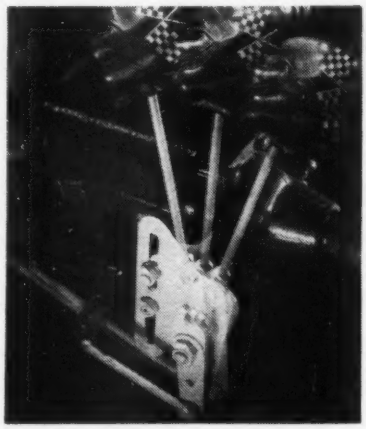
New Products

continued from page 18

FAST-SHIFTING LINKAGE

Ever watch a motorcycle driver shift gears? He's fast, because he doesn't have to zig and zag to find the cogs. He moves his hand in a straight line.

California Equipment Co., P.O. Box 8036, Northgate Station, Seattle 55, Wash., have a new linkage that converts a column shift to a floor shift without



the familiar "H" pattern. To change cogs, just move the lever fore and aft. Even for a real good gearbox technician, time-saving through the gears is about a full second! And it's pretty hard to miss a shift.

The linkage is available for Cad, La-Salle, Ford, Merc, Pontiac, Chevy and Olds gearboxes at $34.95.

COLD WEATHER SLIPPERS

If you drive a sporty car where it's cold, here's an item worth thinking about—Habitant. Produced in Canada where it's *really* cold, it is made of

natural soft cowhide completely lined with deep fleece shearling. Nothing is synthetic. In men and women's sizes 4-13, price is $9.95. It's a quality slipper that lasts for years. Contact Fellman, Ltd., 49 W. 43rd St., New York 36.

continued on page 22

Advertisement

Questions and Answers

What is it—Best Car Buys is a listing service . . . a publication which is sent you every six weeks. It is an organized effort to bring to you from hundreds of sources throughout the United States a list of new and used cars that you may purchase at dealers wholesale or below . . . it is an organized effort to screen from thousands of current wholesale buys the very best ones and present them to you in published form, describing the car . . . the equipment . . . the price . . . the address of the seller and complete instructions for buying wholesale.

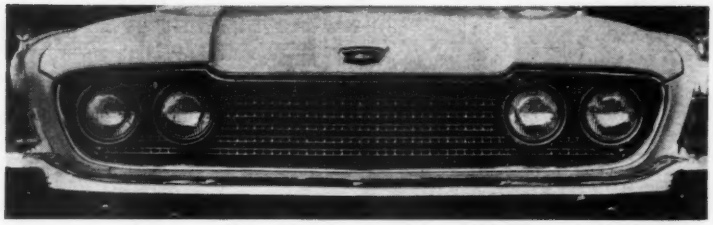
But how can I buy wholesale . . . I am not a dealer! True, many of these cars can be bought only through a licensed dealer so we have arranged for a licensed dealer to buy them for you. You will be given a registered number and card which will be submitted each time you wish to make a purchase . . . it's as simple as that.

What type of cars will I be able to buy wholesale! Practically every make and model . . . NEW and USED . . . American and Foreign . . . New cars ordered to your specifications . . . Used cars from the 1950 models through the 1958's . . . sedans, hardtops, wagons, convertibles, trucks, even cars from overseas . . . direct to you.

Where do these cars come from! The giant auto wholesalers who sell large volumes of cars to the used car dealers . . . private company fleets who sell every one or two years . . . distressed new and used car dealers who must reduce inventory . . . car leasing agencies . . . car rental agencies who may sell a car after four months of use but usually after ten to twelve months. Federal, State, County and City agencies who dispose of cars by bid . . . fleet brokers.

What is wrong with these cars . . . they are so cheap! What at first may seem like a gimmick can be explained if you understand the sound business principle behind these prices. First of all, remember these are not retail prices, in fact many are below the average wholesale and are exceptional buys for the car dealer as well as for you. These cars are normally sold only to the car dealer for resale on his lot and if you didn't know how and where to buy direct you might end up buying one of these same cars from his lot and be paying him a profit instead of making one for yourself. The fact that you can buy some of these cars below their actual wholesale value is not because they are wrecked or damaged but because they are usually fleet cars and are sold under a different system than the buying and selling of single units.

As an example let us examine a typical situation where the fleet user is an insurance company who buys 300 cars each year. To begin with they buy from the dealer who gives them the lowest bid . . . these prices are usually $25.00 to $50.00 over the dealers wholesale. After the company has purchased these cars they set up a tax depreciation on each car which will allow them to sell this car at the end of one or two years for a very small sum compared to its current market value yet justify this loss or depreciation from a tax standpoint . . . this is the first explanation. When the company is ready to buy another fleet the dealer who sells the new cars is rarely in a financial position or willing to take 300 used cars in trade on a gross profit of $25.00 a car. Therefore, the insurance company must dispose of their own cars and this is usually done through the giant middleman or fleet broker who will bid and buy the entire fleet. Since his success is dependent on buying and selling as fast as possible . . . so that he can release his working capital for future bids . . . **he sells price** . . . for he knows that this is the only way he can unload these cars fast enough . . . his outlook on the car market is how much can he make on his investment in how short a time . . . not what the market potential is for a single car. His formula is simple . . . he divides the total number of cars into total price he pays the insurance company and adds a profit suitable for his risk investment and this is the price all 300 cars will be sold for . . . a very democratic action since among these three hundred cars some may be driven 9000 miles, while others may be driven 40,000. You see it will be possible for you to benefit tremendously from this system.



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1958 FORDS . . . . . $350 AND UP
1958 STUDES . . $375 FULL PRICE

1959 Fords used commercially for 11 months, service records are available for every car. New tires and mileage comparatively low for this type fleet. Well-maintained, excellent buys! This fleet will be sold in Oct., Nov., and Dec., as 1960 replacements are delivered to the company. The 1958's were commercially used 12-15 months and are available now. Good mechanical condition. Many other thousands of fleet-lease-rental cars will become available at wholesale prices during the next 6 months and will be located in major cities throughout the U.S. Best Car Buys members are sent lists every 6 weeks showing them when and where to buy at these prices. They can buy 1 or 100. Car dealers welcome, too.

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Name_____ Age_____

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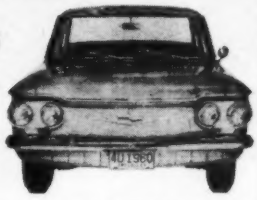

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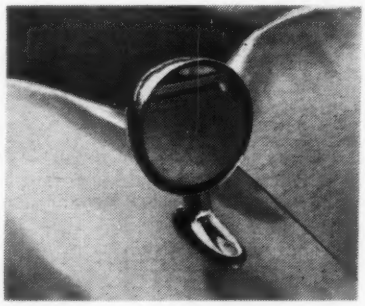
New Products

continued from page 20

UNUSUAL MIRRORS

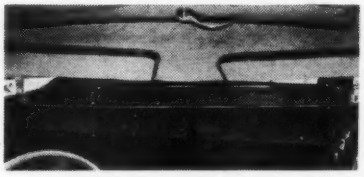
Here's a duet that may hold some interest for you if you spend a lot of time in your car.

The first is a fender-mounted side-view mirror adjustable from the driver's seat without reaching out the window to try



on a hit-or-miss basis. It's a quality item finished in chrome that's there to stay. Available at better accessory houses, or write to C. M. Hall Lamp Co., 1035 E. Hancock St., Detroit, Mich.

The second item replaces the present single-pane rear-view mirror. Stretching across the upper width of the windshield are five individual mirrors pre-focused at varying angles. The center one looks straight back; the center two out the



rear-door windows; the outside brace are focused out the driver's and passenger's windows. At one glance, it's all there. For information, write to Wyd-Vue Mfg. Co., 401 La Porte Ave., Northlake, Ill.

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Heath do-it-yourself kits for automotive use are no longer new, and we know they're good. Now they have an item that may make life easier at home, or in shop or office.

It's a simple inter-com set with a master and as many remotes as desired. It can save a lot of steps and do a lot of jobs, including that of a very attentive baby sitter. Power supply for low-draw transistorized units is eight flashlight batteries. Price for master and remote, $34.90. Write to Heath Co., Benton Harbor, Mich.

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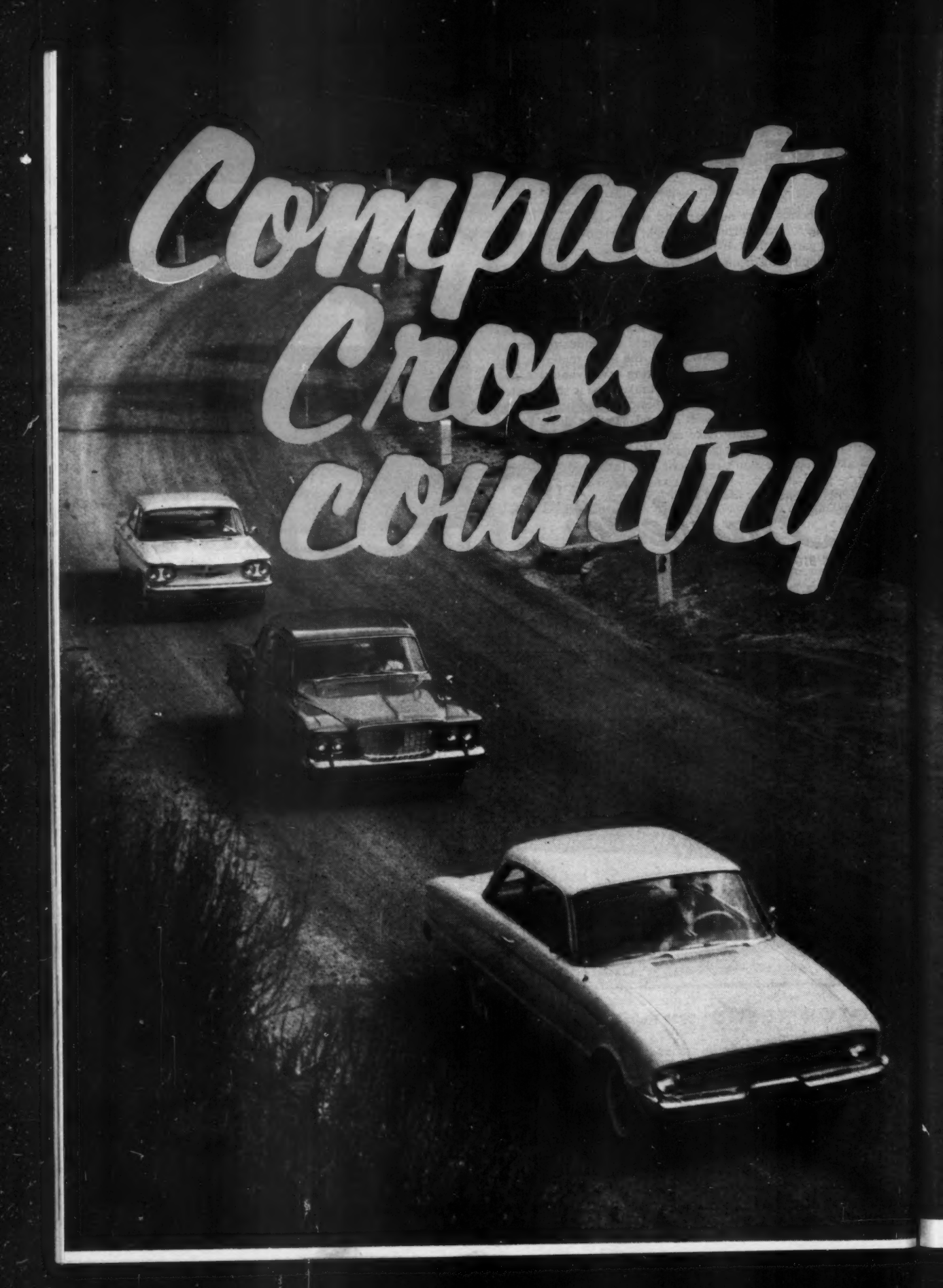
Compacts Cross-country



The first choice in determining whether or not you should consider buying one of the new compacts is not necessarily "Which one?" but "Should I buy a compact *or* a normal-sized car?" It is only after having decided in favor of the compact that you can then approach each of these new cars (or one of the other two compacts) to see which one best fits you.

Probably some of the major considerations in prospective (and actual) buyers turning to the compact cars are the facts that they feel that normal-sized cars are "too large" and that the compacts are more economical—both in initial price and in operation.

That many of today's cars are too large—to maneuver easily and to park, especially—is pretty much agreed. As to whether or not the new compacts are much cheaper to buy or to drive remains questionable.

The first doubt creeps into your mind when you price a Corvair (or Falcon, or Valiant) and then price a standard Chevy Biscayne 6 (or Ford Fairlane, or Plymouth Savoy 6). Equipped the same, you probably won't find more than $200 difference—and much of this differential *could* be wiped out by razor-sharp dealing.

The next doubt filters through when you compare "economy of operation," providing you have accurate figures available—as we do. You'll find that you may not save as much as you thought on gasoline (around $75 or so a year, to be exact) and that your major cost savings will be in such things like servicing, lower tire cost, cheaper insurance premiums (as much as 10 per cent less), etc. These *could* total up to enough dollars to make the move to a compact car a smart one.

And what of the cars themselves? Which one to buy?

Weeks ago we embarked on one of the most ambitious road test programs we've ever undertaken. We not only arranged to pick up a Corvair, Falcon and Valiant in Detroit, but drove each of them over the same 2500-mile route to the West Coast. We then tested them additionally under identical conditions on the Riverside Raceway's "Proving Grounds" and on city streets, highways and roads throughout Southern California. In all, we put more than 3500 miles on each car before passing on to you our considered opinions. Though each of the reports on the following pages is written by the staff member who drove the car out from Detroit, each of the reports contains our composite views.

How do we rate them? Well, objectively and somewhat subjectively too, we have to nod in favor of the Corvair. Next we would take the Valiant, with the Falcon close behind. As to why we do, read the individual reports and the summation of each car on pages 31, 37 and 43.

CORVAIR ROAD

MT TEST REPORT BY CHARLES NERPEL

GENERAL MOTORS STEPPED into the "smaller car" field with an entirely new concept of an American motor car. The new Corvair is definitely not a scaled-down version of anything previously offered by Detroit, and it undoubtedly took a great deal of intestinal fortitude to make the decision to produce a rear-engined, air-cooled automobile in the face of our national tendency to "do what everyone else does." It is refreshing, to say the least, to see something new once in a while and for this we compliment the men behind the Corvair.

MOTOR TREND's road test program exposes our test drivers to a wide variety of domestic, imported, and competition cars. Our attitude toward any car we are preparing to drive—whether it be "conventional" or unusual—is to first learn to drive it, find out some of its handling, braking and cornering characteristics. This is the attitude we had when we slid behind the wheel of a model 700 Corvair in the General Motors garage in Detroit and prepared to conduct a cross-country road test. As with other test cars, we would first learn to drive it, and then, calling on past experience, evaluate the answer to the question, "Did learning to drive this car require any unusual skill or more time than so-called conventional automobiles—or simply put, does it need getting used to?" It did not require a cross-country drive to answer this question but 3000 miles provided an opportunity to expose the car and driver to most conditions encountered by the average car owner, in addition to checking mileage, comfort, and simple maintenance.

THE CAR WE TESTED The Corvair waiting for us in the GM garage in Detroit with only 188 miles on the odometer was a model 700, arctic white four-door sedan. It had radio, heater, white sidewall tires, optional tilting rear seat, and three-speed manual gearbox with 3.55 to 1 rear axle ratio. The powerplant, the only one currently available for this car, was GM's new flat six-cyl. opposed, aircooled, 140-cu.-in. ohv engine with hydraulic lifters and two single-throat downdraft carburetors, one for each bank of three cylinders.

IN THE DRIVER'S SEAT Wheel location in relation to the line of vision and height of lower wheel rim from seat is much like that in our most popular sportscars. This applies to both the tall and the short driver who will find adequate head and elbow room. From the waist down it is a different story, for the long-legged will not be able to move the seat far enough rearward to avoid his knees being bent at a rather acute angle even when the feet are placed under the suspended clutch and brake pedals. This is tiring because of the short seat, which just does not furnish adequate thigh support for average leg length and leaves the long-legged hanging in the air.

While the tall driver will find his legs rather cramped by the limited seat adjustment, he will have an advantage over the shorter persons when shifting to second gear as the floor shift lever requires a long reach for this gear position. Your

service department or mechanic can correct this by applying heat and bending the lever to a more convenient curve to suit you.

Instrumentation is simple but adequate, with a highly legible speedometer that does not pick up internal reflections day or night. Oil pressure, temperature, and generator are indicated (only if they fail) by red tell-tale lights in small windows below the speedometer. The generator light is most important as it also indicates possible fan belt failure. This belt drives the aircooling blower without which the engine will overheat rapidly. Light switch includes dimmer for instrument panel lights and controls interior dome light, and like the single-speed electric wiper control is conveniently located on the instrument panel.

The parking brake release handle might be designated as part of the instrument panel as it is located near its lower left edge. A T-release handle is pushed out as the hand brake is pulled. This lever which mechanically sets the rear brakes has a built-in ratchet much like a socket wrench handle, and the brakes can be set to maximum with several short strokes.

PASSENGER SEATS Seat contours probably have more to do with comfort than the amount or resiliency of the padding, and while the Corvair has a good seat and back shape, the padding is on the soft side with nearly five ins. of depression. Rear seat width of close to five feet provides enough hiproom for three average-size adults. A slightly narrower distance across the front seat makes it a tight squeeze for three and very inconvenient for both driver and center passenger if the car has a stick shift. Rear legroom and seat cushion depth are quite a bit shorter than the front and tiring for long trips. Headroom is good both front and rear and comparable to most of the standard-size cars. Armrests would be welcome for both front and rear passengers.

CITY DRIVING Two widely separated single-throat, downdraft carburetors on the Corvair receive their air supply through a common air cleaner. Intake air to the cleaner is through an oval tube in which the choke butterfly and automatic choke mechanism are housed. A slight depression on the foot throttle "cocks" the butterfly in choke position and the starter is then engaged in the conventional manner by turning the ignition key to the right. Rapid transmission of heat through the aluminum cylinder head, thermostatic control of both engine oil through the oil radiator, and air through the plenum chamber or shroud around the cylinder head and barrels, allow rapid engine warm-up.

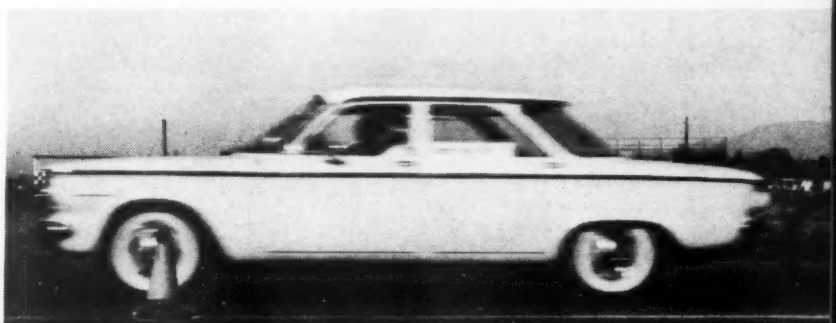
Good seating, vision, and one-finger steering are important to driving ease in the close quarters of city traffic. Our test car, with three-speed manual shift, did not require much gear changing as the 140-cu.-in. flat six, combined with the 3.55 to 1 rear axle, provides enough torque to lug down to about 22 mph in high gear and still accelerate in normal traffic without the need for shifting to second. Personally, we would like to see the Corvair with a four-speed manual gearbox or at least a synchromesh first gear for their existing three-speed.

Short overhang front and rear provides good clearance for ramps and driveways, but we were disappointed at the large turning circle (39 ft.) required for the 108-in. wheelbase. Five turns lock-to-lock for the steering wheel also seems like a lot of wheel spinning to move such lightly loaded front wheels; a livelier ratio would give quicker steering and still retain that wonderful positive feel of a front end that is not overloaded.

In the case of the Corvair there is a big difference between vision and visibility. The latter is excellent because of thin corner and window posts and a wide expanse of glass. This glass is set at such a good angle that it is possible to use the center dome light at night without blinding the driver with internal reflections, but this same angle causes a real dangerous hazard during the day when driving toward a high sun. There in the center of the driver's line of sight, reflected from the instrument cowl, is the glaring ball of the sun. Front seat passengers get the same reflection from their side of the cowl.

When queried about this windshield reflection, the Chevrolet factory informed MOTOR TREND that original specifications

TEST



THE CAR AT A GLANCE

Things we like

- *Good handling, positive steering on open road and in mountains*
- *Isolation from engine heat and noise*
- *Aircooled engine, easy to service*
- *Stable ride with four-wheel independent suspension*
- *Simple instrumentation and controls*
- *Fast, efficient heater and defroster*

Things we don't like

- *Fairly poor gas mileage*
- *Rear wheel judder on sharp corner*
- *Large turning circle*
- *Odd-shaped luggage compartment*
- *Seat adjustment too short*
- *Non-synchromesh first gear*

ROAD TEST

continued

for 45 per cent luster paint on the cowls had not been met on the first few cars turned out. Our test car cowl had 90 per cent luster paint but this situation has been corrected on all present models coming off the assembly line. On our trip we remedied the situation by taping a piece of velour on the cowl.

ON THE HIGHWAY Much of our cross-country highway system has changed greatly in the past few years. Route 66 is undergoing such a facelift there is little of the old road in existence and the two- and three-lane highway has given way to long stretches of divided pavement that bypasses small towns, steep hills, and curves necessitated by river beds or other natural obstructions. Already the requirements for highway cruising have changed. For one thing the 70-mph speed limit in most of the states along the improved highways requires a car that can cruise comfortably at these speeds with some margin left for passing within reasonable distances. By actual stopwatch timing, we were able to accelerate from 50 to 80 mph in an average of 24 secs. Extra passengers and luggage will naturally increase this time, and a greater margin of safety in distance is required.

The Corvair tracks well at speed and requires little correction on highly cambered roads. Engine noise is quite low, due to placement and insulation; little of it is audible inside the car at 70-mph cruising speeds, even with windows open. Road noises are well absorbed by isolating the suspension from the unit body, and the rear engine location keeps floorboards cool with relatively thin padding. Unless the windwings are turned to maximum deflection, wind and ventilator noise levels are low enough to permit normal conversation at cruising speeds.

HOW IT ACCELERATES The zero to 60 mph times through the gears (see chart) are an indication of what the average driver can expect when attempting to enter an expressway or freeway and merge with rapidly moving traffic. Under the majority of conditions, the stick shift Corvair has adequate acceleration for this purpose. Passing speeds, or what used to be called "pick up," are very important in today's traffic to insure safe passing. The closing times of vehicles approaching each other at 50-plus mph are very short, too short to take any chances with relatively slow accelerating cars. We played it safe with the Corvair and had no close calls, although we saw other motorists with powerful engines cutting it too fine. Our point is: if you rely on fantastic acceleration and little judgment for passing, you are treading on thin ice that is apt to break—if you try this with the Corvair.

IN THE HILLS AND MOUNTAINS Our straight route to Los Angeles was diverted by cutting up to Santa Fe, N.M. to cover the last leg of the American International Rally. The roads along this route were winding, hilly, with altitudes up to 6900 ft., plagued by strong head- and crosswinds. We tagged along with rally contestants, diced down through Zion National Park with sportscars and surprised quite a few of their drivers by the ease with which we tailed them through the sweeping bends along this route. When we could anticipate the hills and were not forced to reduce speed behind slow-moving vehicles, we were able to negotiate most of the grades in high gear.

Altitude takes its toll in performance and fuel economy, and as our carburetors were not jetted for it, we had to resort to second gear more than once to get back to cruising speeds.

Cornering on sharp switchbacks is not for the Corvair. Because of the necessity to decrease oversteer of swing axles for the average driver, the rear end geometry assumes extreme toe-in of the rear wheels and conditions of maximum body lean. While this lean is slight, it does cause the rear wheels to judder as they attempt to follow a slip angle line and a steering line that are just too far apart. Those MOTOR TREND staffers who drove the car to their homes up some of the winding canyons in the Los Angeles residential section, noticed this judder on the sharp curves at normal speeds. The toe-in can be reduced by shimming the engine mounts so as to move the entire assembly fore or aft. Normal cornering does not throw the passengers around, produce a sickening lean, or squeal the tires. We like the way the Corvair handles but it can be oversteered.

DRIVING IN BAD WEATHER Two days of pouring rain in Missouri and Oklahoma gave us a good opportunity to observe the excellent sealing of doors, windows and luggage compartment against water. All of the huge trucks carrying interstate merchandise are not equipped with rear wheel splashers. Pulling out to pass one of these monsters is like piloting a boat in a blinding gale. While the overlap and speed of Corvair's electric wipers is more than adequate for hard rains, there are a few seconds of near-blind visibility as the car dives into the spray from these trucks. Even pleasure vehicles splatter quite a bit on overtaking cars so it is important to cut this moment to as short a period as possible.

The Corvair is the only U.S. production car with independent four-wheel suspension. Since the early '30s when independent front suspension made its debut on the domestic cars, there have been rumors and speculation as to when a similar principle would be used on the rear wheels. There was also much speculation as to how the rear suspension and engine location would affect handling on slippery surfaces. We drove in the rain, exactly as we would have driven a so-called conventional car, and noticed only the advantage of extra rear-wheel traction on wet or muddy surfaces.

POOR ROAD CONDITIONS Some of the dirt and gravel roads that take off to interesting places have plenty of ground clearance for most vehicles but poor traction on grades causes many a tourist, hunter, or fisherman to back up to the pavement. The Corvair is no Jeep, but the added weight and suspension on the rear wheels give this car a good bite in the soft stuff. Slick muddy surfaces are also more passable. We did not ford any streams but after a day and a half in torrential rains and lake-like puddles, the upper engine compartment which houses the vital ignition and carburetor system, remained high and dry. Corvair's four-wheel independent suspension smooths out washboard roads and chuckholes since the action of any one wheel does not affect the angle or bounce of any of the other wheels.

GAS AND OIL MILEAGE After more than 3000 miles of driving the Corvair under all possible conditions, we are still unable to answer one question, "Where does all the gasoline go?" This relatively small-displacement engine, mounting two Rochester

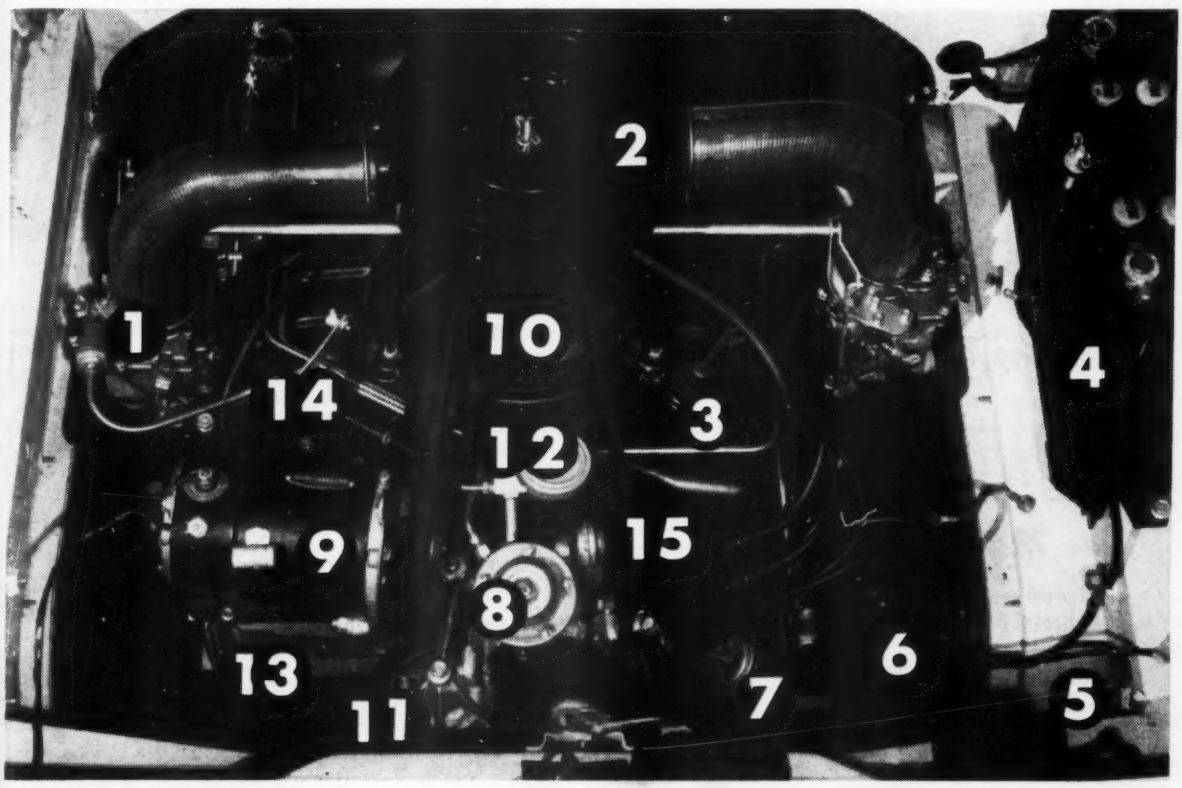
downdraft carburetors, will take no prizes in the economy part of the small car contest. Our average for the entire trip was 20.7 mpg with some test runs at steady 50 mph producing as high as 24 mpg, while high-altitude driving dropped it to 17.3 mpg. There was no measurable difference in fuel consumption with the heater in use but it is estimated that with it full on we were using about one gallon of gas every six hours. Mileage range, on the basis of the 20.7 mpg trip average and an 11-gal. gas tank, is 228 miles. Oil consumption for the first 1000 miles was two quarts, even though we kept the speed below 55 mph for this initial break-in period. After changing the oil at 1000 miles, consumption was 1½ quarts for the next 2000 miles.

HOW IT STOPS As seen by the chart on MOTOR TREND's new brake test system, the Corvair does a creditable job for its total weight. Weight distribution due to the rear engine gives the rear wheels a chance to do 54 per cent and the front 46 per cent of the stopping. Several times during our cross-country test, we had occasion to stop—and stop hard—from 70 mph. Once a huge house trailer decided to make a lane change in front of us without signaling. We had already picked a spot on the well-graded shoulder to dive into should the brakes give up, but the Corvair just squatted and dug in with all four wheels maintaining good road traction. When we had recovered our cruising speed, just to see what this rapid slowdown had done to the brakes, we jabbed them again and had plenty left for another one in case we needed it. Nine-in. cast-alloy iron drums and bonded linings provide 120.8 sq. ins. of braking surface.

HOW THE ACCESSORIES WORK The need for power braking and steering assists do not exist with Corvair's reasonable brake-lining-area to weight ratio and the lightly loaded front wheels. In fact, they are not available for this car. The two-speed Powerglide transmission, a torque converter with planetary gears, is a time-proven drive unit that works well on the Corvair with some sacrifice of around-town fuel economy. It does give greater front seat legroom for the center passenger by eliminating the floor-mounted stick shift. The gasoline heater provides plenty of hot air in a hurry and its blower de-mists the windshield rapidly. You can also buy extra luggage space for this car with the optional folding rear seat. How it works is explained under the luggage and tool section.

LUGGAGE AND TOOLS The actual cubic feet of cargo space available is not nearly as important as the shape of the cargo space when determining how much a vehicle will carry. Assuming that most of us do carry our belongings in some sort of suitcase or box, it is logical that the available space should accept existing shapes or normal luggage. Corvair's forward compartment has a wide opening (54 ins.) and great depth (30 ins.), but the interior width is rather limited for normal-shaped suitcases by the irregularities of the front wheel wells. Near-vertical mounting of the spare tire also cuts down the usable space. We were able to carry a king-size wardrobe bag vertically in the front compartment with room to spare for smaller odd-size packages.

Inside the car there is room behind the rear seat for small bags of the vanity or overnight type, but the optional fold-down

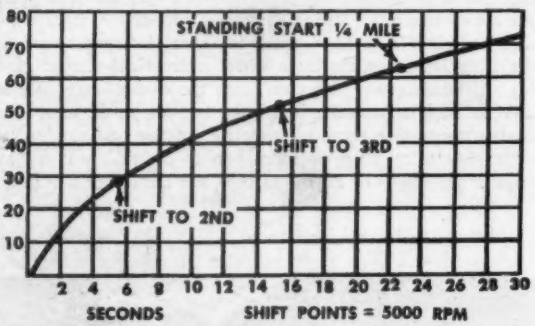


1—Single-throat carburetors
2—Carburetor air intake filter
3—Oil level dipstick
4—12-volt, 35-amp./hr. battery
5—Delco-Remy voltage regulator
6—Coil
7—Distributor and vacuum advance
8—Mechanical fuel pump
9—Generator
10—Air control and cooling fan
11—Cartridge-type oil filter
12—Oil filler neck
13—Oil radiator
14—Spark plugs
15—Fan belt idler tension pulley

MT | ROAD TEST '60 CORVAIR

Acceleration

0-45 mph 11.5 secs. 0-60 21.2
Quarter-mile 22.2 secs., 61.3 mph
30-50 8.2 45-60 8.5 50-80 24.0



Top Speed

Comfortable cruising From 50 to 75 mph
Maximum speed 88 mph

Stopping Distance

From 60 mph to standstill 182.6 ft.
Stop after maximum acceleration to end of ¼-mile 182.6 ft.

Gas Mileage

Over-the-road averages	Mpg	Mph
All types of roads, through small towns	19.4	38.8
2-lane, 4-lane, open road	20.5	59.9
2-lane, level, open road, high altitude	21.9	51.5
2-lane, 4-lane, mountain country	17.9	54.4
2-lane, open road, mountain and desert	23.8	62.8
Overall average for 3004-mile trip	20.7	53.4
City driving	18.2	
Constant speed, level road fuel checks	24.8	30
	24.1	45
	23.2	60

rear seat is worth the extra $32.30 as it provides a generous flat area 34 ins. x 57.6 ins.—enough for several large suitcases. It was most convenient for our coverage of the American International Rally as we kept cameras, jackets and our luggage just behind the front seat, within easy reach and without the need to grope behind seats or on the floor. Naturally, with the rear seat occupied, only the forward trunk and the small space behind the rear seat is available for luggage, but for two persons the folding seat provides luggage room to spare and space to bed down a small child. Tools stowed rattle-free behind the spare include a scissors-type jack and a ratchet lug wrench that also works the jack. Jack points indicated in the driver's manual are along the sides of the unit body and must be used because there is no separate frame. This system is much easier and safer than the old "out and under" method or the bumper jack.

SERVICING Accessibility to spark plugs, distributor, coil, generator, carburetors, voltage regulator, oil filter, air cleaner, battery, oil radiator, fuel pump, ignition timing marks, and fan belt is excellent. The upper engine compartment is isolated from the actual cylinder barrels, heads, and valve covers by a fitted rubber-sealed panel that keeps road surface water and dirt from all of those components requiring regular normal service. The louvered air intakes on the engine lid or hood are baffled with drains to divert any water that falls from the top, insuring a clean, dry engine compartment. This is a great asset to easy service and efficient operation.

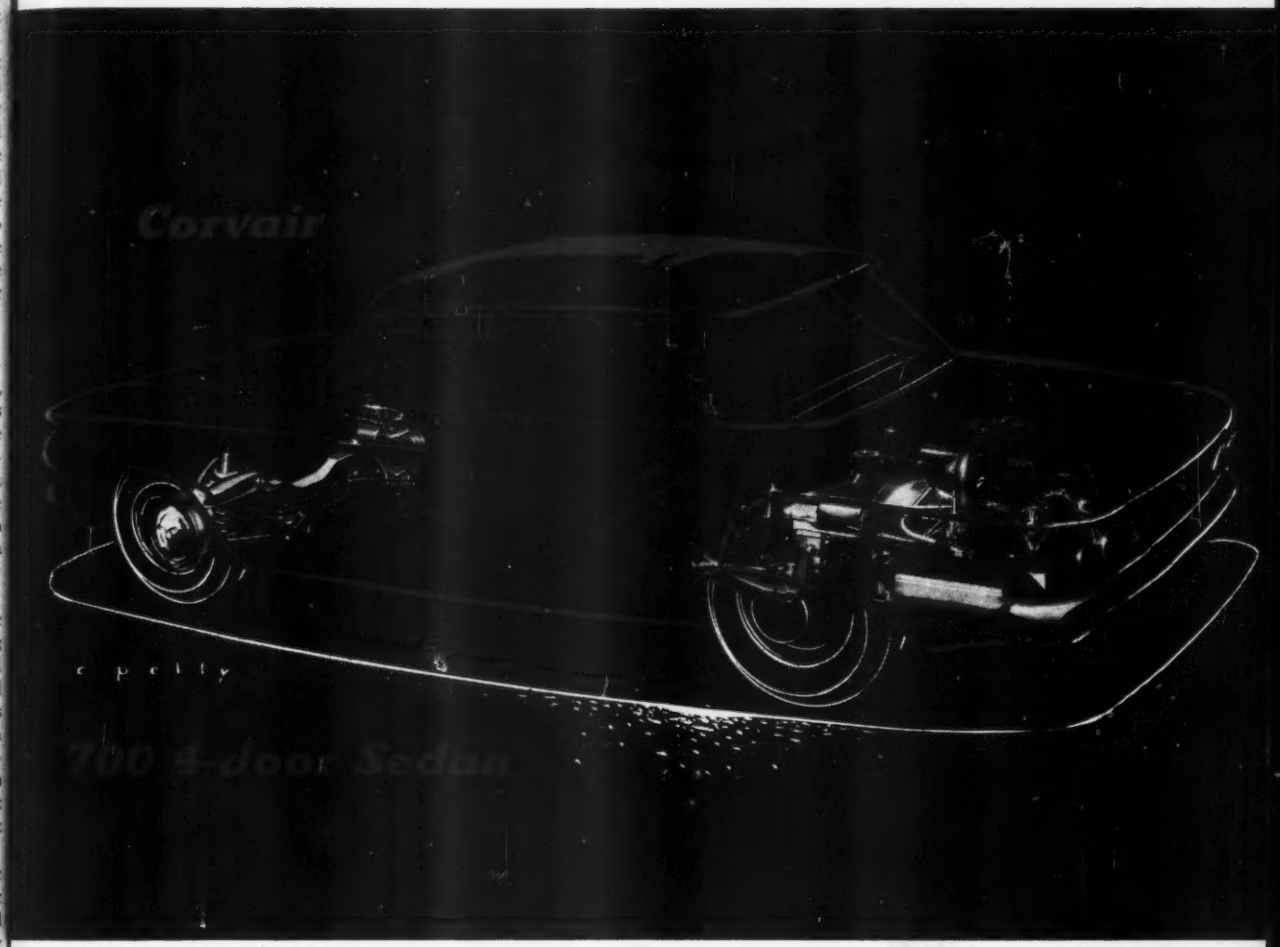
We were asked many times about the peculiar twisted route that the fan belt makes as it drives the generator and cooling fan. This type of application for V-belts has been accepted practice for many years on machine tools and other high-speed power equipment and is trouble-free, provided all the pulleys are of the proper dimension and alignment. In addition to an idler pulley to maintain tension, the generator is on an adjusting bracket so that its pulley can be properly aligned with the belt path. If the red generator fan light comes on, stop at once because your engine is not getting the required amount of cooling air and permanent damage may result.

Dealers throughout the country are just beginning to get their rate manuals for various repair services for the Corvair. Their breakdown of these services are on a per hour or fraction and do not include parts, but to give a little idea of what is already known about these new cars, here are some rates for minor adjustment.

Minor tune-up: Includes mechanical adjustments on chassis, cleaning and adjusting points and plugs, checking out all instruments, adjusting carburetors, 2.1 hours. Multiply the hours by the rate per hour ($5.50 average) and you have the cost of the above services. Removing and overhauling both carburetors at this rate is $9.90. As the present Corvair has hydraulic valve lifters, there is no need for their adjustment, but the valve cover arrangement is so similar to the Porsche and VW, that the cost of adjusting mechanical lifters, if and when they are available, should not be higher than any other ohv six.

IS IT A GOOD BUY? The size, weight and horsepower of a domestic automobile are not in direct proportion to what you have to pay for it. With our high American labor standard, the man-hours employed in building a product affects its price much more than the physical size of the product. Many feel that "smaller" cars should have a substantially lower price than their larger counterparts, but the truth is, the production line worker who puts the smaller cars together makes basically the same per hour as the man who works on big cars.

The Corvair is truly an all-new car with features such as independent four-wheel suspension, aircooled rear engine, and unit body offered at a price competitive with the other domestic compacts. The promised fuel economy—lowest of the three new smaller cars—is disappointing, but the ride, handling and air-cooled engine make the Corvair an attractive package to the buyer who wants something all new and different.



HOW THE CORVAIR COMPARES TO THE FALCON AND VALIANT

How It's Put Together—*Better than Valiant, not as good as Falcon.*
In City Driving—*Better than Falcon, not as good as Valiant.*
For Highway Driving—*Equal to Falcon and Valiant.*
Ride—*Not as good as Falcon and Valiant.*
Acceleration—*Equal to Falcon, not as good as Valiant.*
Mountain Driving—*Better than Falcon and Valiant.*
On Poor Roads—*Better than Falcon, equal to Valiant.*
Gas Mileage—*Equal to Valiant, not as good as Falcon.*
How It Stops—*Equal to Falcon and Valiant.*
Trunk Space—*Not as good as Falcon or Valiant.*
Serviceability—*Better than Valiant, equal to Falcon.*

SPECIFICATIONS OF TEST CAR

ENGINE: Pushrod-operated, ohv, horizontal opposed 6. Bore 3.37 ins. Stroke 2.60 ins. Stroke/bore ratio 0.77:1. Compression ratio 8:1. Displacement 140 cu. ins. 2 single-barrel carburetors. Single exhaust. Advertised bhp 80 @ 4400 rpm. Bhp per cu. in. 0.57. Max. torque 125 lbs.-ft. @ 2400 rpm.

TRANSMISSION: 3-speed manual. (Powerglide optional.) Ratios 3.22:1, 1.84:1, 1.00:1; reverse 3.65:1.

CHASSIS: Body-frame unit construction, welded. Front suspension — Independent, long and short control arms with coil springs. Rear suspension—Independent, swing axles with angle control arms, coil springs. 6.50 x 13 tires. Rear axle—Differential integral with transmission and engine, ratio 3.55:1 (3.89:1 optional). Steering — Recirculating ball, aluminum housing; overall ratio 23.5:1; turning diameter 39 ft.; 5 turns lock-to-lock. Brakes—Drum hydraulics. Bonded linings 7.85 x 1.75 ins. Total effective lining area 120.8 sq. ins. Weight/lining area ratio 102.6 sq. in./ton.

DIMENSIONS: Wheelbase 108 ins., overall length 180, overall height 51.3, overall width 66.9, headroom—front 38.7, rear 38.0; legroom—front 42.8, rear 36.5; hiproom—front 57.8, rear 57.6. Tread—front 54.0, rear 54.0 Weight as tested 2355 lbs. (38% front, 62% rear). Weight/power ratio 29.4 lbs./hp.

PRICE: Factory-suggested base, f.o.b. Detroit $2103. As tested (approximate list) $2307.

ACCESSORIES: (prices approximate): Heater $74, radio $54, Powerglide transmission $146, folding rear seat $32.

ROAD TEST

MT TEST REPORT BY BILL CALLAHAN

IT'S EVIDENT THAT Ford's biggest sales pitch for their new Falcon is to "unsell" the idea of a rear-engined car. It started with their "weighted-in-the-rear arrows" on TV commercials and is being fostered additionally in newspaper and magazine ads. Take a look at such statements as these:

"The engine's up front to reduce chances of oversteering (characteristic of many rear-engine cars), or skidding out of control in emergency stops . . . ." "The gas tank is safely in the rear, instead of up front 'in the laps' of driver and front-seat passengers . . . ." "Optional hot water heater eliminates fumes and danger of gasoline-fueled heater inside the car (required by aircooled engines) . . . ." It's obvious that such challenges are being issued to one car only—the Chevy Corvair. Do they have true facts to back up such statements?

We had compared the various specifications, then car against car (Dec. '59 MT), but needed something like our 2500-mile cross-country road tests of each car (plus one on the Valiant) to give us more facts to back up our opinions. By checking the same items we cover in this report against those on the Corvair and the Valiant, you will be able to determine for yourself if the Falcon lives up to its claims (and also, incidentally, whether the Corvair and Valiant do, too). Actually, we feel that the Falcon can be judged only in relation to its design concept—not against the other compacts. Yet, since Ford has invited the comparison, prospective buyers will certainly make it.

One thing we found by driving a car cross-country, living with it as long as we did and then later is that you get *used* to a car—both its good features and its bad. After getting to the coast and comparing notes with the drivers of the other cars, we switched around, then found that each driver defended the car *he* drove. That's why we continued to put more miles on them, switching off back and forth until we'd had a full indoctrination period with each car.

THE CAR WE TESTED Basic specs on our test Falcon: Body style—two-door sedan (they also make a four-door). Engine and drive train—144-cu.-in. six (standard) with three-speed manual transmission. Accessories—deluxe trim, radio, heater, padded dash and visors, seat belts. No power assists—none are necessary.

IN THE DRIVER'S SEAT Position of the driver's seat in relation to controls is good, though it depends a lot on whether you like "chair-height" seats or those that are closer to the floor. This also permits good vision over the 17-in. wheel for the av-

erage-sized driver. It also seemed a fair compromise for the short and the tall. The clutch, brake and throttle are conventionally located and caused no unnatural movements to drive either slow or fast.

The contour of the seatback provided good support for our spine on long hauls and the depth of the seat cushion front-to-rear gave good support for the thighs. Padding is firm and never made necessary that "shuffling of the seat" feeling; it also provided good ventilation even during hot stretches that had us wondering if we would turn into "wetbacks."

Instruments, grouped in a panel directly in front of the driver, were easily read day or night. Controls, for such things as lights, wipers and heater, are all a convenient reach for the driver. We found we quickly recognized the controls and switches—not like the airplane-type panels in some of the "bigger" cars. Visibility is good front and rear; we can't recall a single embarrassing moment when we pulled into another lane because we didn't "see" the other car. Regardless of direction we were driving and intensity of the sun's rays, we got no "hot spots" of reflection off the dash (padded) or off chrome strips, handles, etc.

Vent panes are operated by a latch at the rear edge of the pane and you push them to open. One safety factor seems to have been overlooked: lock-type handles, which can be an effective discourager to amateur car thieves.

PASSENGER SEATS Generally, there was little, if any, complaint from passengers who rode front and rear. One point we should clear up—the Falcon is not normally a *six*-passenger car. You can seat two adults alongside the driver and he *can* shift (because the lever's on the steering column) and you *can* seat three adults in the rear, but they won't like it for longer than our mile-long trip to the restaurant. It's better to use the English terminology of 4/5 or "normally four, occasionally five"; we don't suggest six. Hiproom, legroom and headroom are not only *good* for four, they're comparable to many "big" cars, including Ford's own other makes.

CITY DRIVING We had two diverse locations to try out the Falcon for its presumed prime purpose—city driving. The first was in Detroit, for the car had a bare 29 miles on the clock when we first got it. Wanting it to be reasonably broken in before we started and because the weather reports coming in were not conducive to an early start, we piled up about 450 miles before trekking west.

Even though the weather in the Motor City was hovering around freezing, the car never failed to start. (Later, during an overnight stop at Wilmington, Ill., the car was frosted over like a cup cake in the morning, yet it started readily.) The manual hand choke is a big assist in these cold starts. Pulling it out full while cranking, then pushing it almost all the way in (to prevent flooding) as soon as the engine fired always worked.

The column shift is not as "sporty" as the floor shift, but it can be shifted with the right hand either on or close to the wheel. We experienced some difficulty finding a smooth way into the second gear gate without dropping a number of engine revs. A saving grace is that the engine will take to lugging at speeds as low as 20 in high and 10-15 in second without bucking when you tromp the throttle and don't downshift. If you're looking

THE CAR AT A GLANCE

Things we like	Things we don't like
Positive, easy steering on the road	Heavy steering in town; too many turns
Excellent gas mileage	Excessive vibration on rough roads
Smooth ride, chair-high seats	Sensitivity to crosswinds
Engine accessibility	Non-synchromesh first gear
Stopping ability	
Adequate trunk space	
Trim detail fit	
Efficient, quiet heater	

FALCON continued

for a fast-shifting machine, better get one with an automatic transmission.

It was the consensus that steering on the Falcon was fairly heavy in town, took far too many turns (five), yet did not need power assist. If you've driven only power-steered cars or sports-cars, you're more apt to complain about the Falcon's steering; if you normally drive anything else, you won't notice too much difference. At higher speeds, the steering "lightened" up considerably.

The car tracks well and is responsive to controls. This, coupled with its overall agility and shorter overall length, made it possible for us to indulge in a bit more dicing in traffic than would be advisable in a larger car. The suspension absorbs the expansion joint lumps in pavement quite effectively but has a tendency to slur sideways quite a bit when you cross streetcar tracks at a diagonal. Because of its short length and moderate overhang, driveway ramps presented no problem. These features also contribute to much greater ease of parking in tight places. It was so nice to whip into tight spots that drivers of larger cars had given up in frustration!

ON THE HIGHWAY A strange thing about the Falcon's steering: though it felt heavy in town, on the road it felt light and even sometimes gave the impression that it was power-assisted. There were times also that the steering wheel felt like it had too much play, which you're going to get with five turns of the wheel lock-to-lock.

Under normal conditions the Falcon cruised comfortably and confidently at speeds up to 70 mph. Even on cambered or high-crowned roads it had little tendency to wander toward the low side; it could be kept in line with little effort.

The ride of the Falcon is stiffer than what you get in most large cars, somewhat choppy, and stiffer than the other new compacts. It is very well "shocked," taking bad dips without too much oscillation after going over them.

Wind noises at high speed are reasonably low even with the vent wings open. Engine noise is never great. Tire and road noises are not objectionable with windows open. The unit body construction has eliminated most body squeaks, rumble or rattle —it's a tight package. On smooth pavement and at all speeds the Falcon is a quiet car. Despite the fact that the Falcon is probably not intended primarily as a long-haul cross-country car, on one leg from Gallup, N.M. to San Bernardino, Calif.—555 miles in 11½ hours, including refueling and refreshment stops—we were not fatigued. Average speed was about 55 mph and much of the run was through hot desert areas with the temperatures hovering near 100°F.

HOW IT ACCELERATES On the highway the most important aspect of acceleration is a car's ability to pass another quickly and remain on the wrong side of the road the least possible time; in traffic, it's to stay up with, or out of the way of, other cars. The Falcon can hold its own, but is no dragster. Its 21-second time to get to 60 mph falls between that of a '54 and '53 Ford V8, which speaks pretty well for it. It has a good second gear and can be pushed to between 55 and 60 mph in that gear without any strain. In the upper bracket—above 50 mph—it is fairly responsive up to 70 mph. Since top speed is around 85 mph, the climb from 70 up requires some waiting. Since most open highway passing occurs in the 55 to 70 mph range, the Falcon will roll in normal traffic and do as well as any other car that holds within legal speed limits. The car is running well above the peak of its torque curve (138 lbs.-ft. at 2000 rpm) at 60 mph so the driver must allow himself reasonable passing room before swinging in to the left lane at that speed.

IN THE HILLS AND MOUNTAINS The Falcon handles well on twisting, winding roads. Its short overall length and wheelbase, plus its stiffer suspension contribute to a feeling of confidence in negotiating relatively tight turns at good speed. There is not too much body sway or lean and tires don't squeal in complaint. Ford engineers tell us this is due to the lighter weight of the car and the wide rim width that increases the lateral stability of the tires.

The retarding effect of the engine with manual transmission is good; on long downhill stretches with normal highway grading it even became necessary to use some throttle to maintain speed. On upgrades the Falcon gives a pretty good account of itself, but you'll find that a hill that's normally a high-gear road for larger cars becomes a second-gear climb. On the road from Santa Rosa to Cline's Corners, N.M. (57 miles) the road climbs from 4200 ft. to almost 7000 ft. The grade steps up from mesa to mesa with some rather steep inclines. Yet, we were able to maintain a steady 65 mph. Only near the summit was there a tendency for power to fall off. Part of this was due to the elevation itself, with the lower barometric pressure robbing the engine of its ability to breathe freely and thus cutting power.

Another good test of mountain climbing ability was on the leg from Topock, Ariz., elevation 510 ft. to South Pass, just west of Needles, Calif., elevation 2759 ft. In this distance of 20 miles the Falcon showed no tendency to overheat, even though driven at top legal speed limits under a scorching sun (100°F) and with no breeze.

DRIVING IN BAD WEATHER On the very first leg of the trip, from Detroit to Toledo, we learned that the Falcon is quite sensitive to high crosswinds. At that time the winds of 35 mph, with gusts to 45, were almost dead abeam and romanced the car considerably; they created a diving and yawing action, particularly when going through underpasses where wind currents ricocheting off embankments seemed to hit from all directions. We definitely recommend low speeds in high winds.

The Falcon proved to be a good mudder. On the stretch from St. Louis, Mo. to well west of Tulsa, Okla. we got a real taste of bad weather. Gusty winds blew torrents of rain directly at us. Yet, there were no water leaks anywhere, except for some seepage around the vent panes when they were opened too wide. Doors, windows, trunk lid and hood and area around the windshield, backlight and windows are well sealed and watertight. There was no tendency for the ignition to wash out, even when

huge trucks doused us with virtual breakers. The parallel-operating windshield wiper blades clear a wide expanse, leaving no center blind spots—just as the ads say. The only trouble is that they leave blind spots at the sides. The wipers are vacuum operated and can be controlled at varying speeds, but they do not pick up speed because they lack vacuum at full throttle.

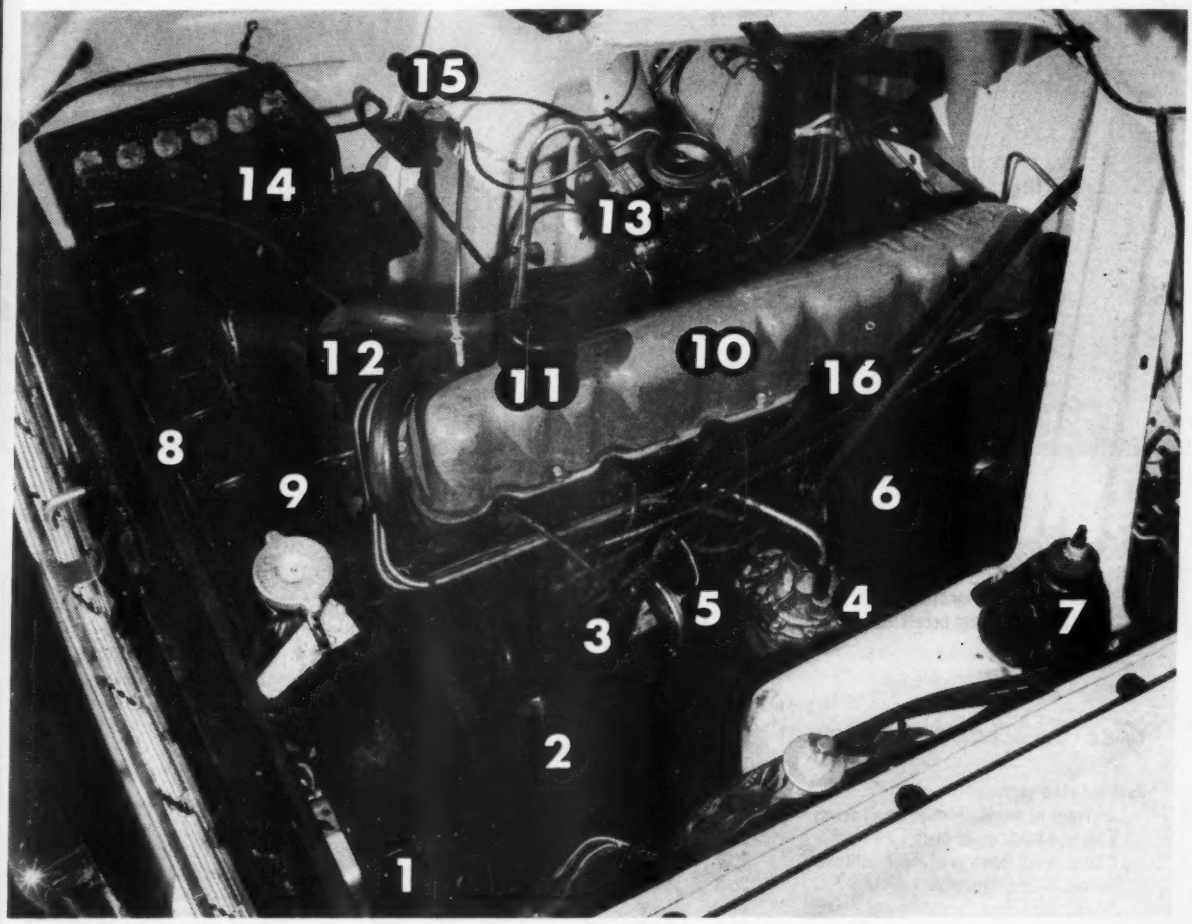
The defroster proved very effective in keeping the inside of the windshield from fogging. Under-cowl ventilators supply adequate ventilation with windows closed in bad weather and effectively screen out the water. They are located on each side of the front compartment under the cowl and are operated by hand latches on their doors. (Incidentally, they're pretty good for supplying fresh air during all-but-the-hottest hot weather driving.)

The heater proved very adequate in lower temperatures—down to near-freezing. Whether or not this hot water heater is any more effective than a gasoline heater is a moot point; comparing notes with the driver of the Corvair we were not convinced of the superiority of either type.

During the bad weather run, traction was good front and rear. Headway at legal speed limits of 65 to 70 mph could be maintained during downpours with confidence. Because of the car's lighter weight, steering was a little more sensitive to water puddles than it would be with heavier cars.

POOR ROAD CONDITIONS Rough spots and gravel surfaces present no handling problems, but there is quite a bit of vibration on washboard roads, much of which is transmitted through the steering wheel—induced by the road surface. On some peculiarly undulating roads in California that gave the impression of riding the waves, the short wheelbase proved a boon.

GAS AND OIL MILEAGE While gasoline consumption on the trip from Detroit to Los Angeles rose considerably above similar tests made by official Ford teams between New York and L.A., the Falcon did quite well. The official Ford figure, based upon the composite experience of 14 cars, was given as an average of 28.44 mpg for the 2804 miles from New York to L.A. MT's Falcon averaged 25.6 mpg for the 2605-mile trip from Detroit to L.A. With this mileage, and the engine needing only regular gas (like the Flying A we used) the gas cost for the trip was only $36.59—or 1.4 cents per mile. The mileage the Falcon is

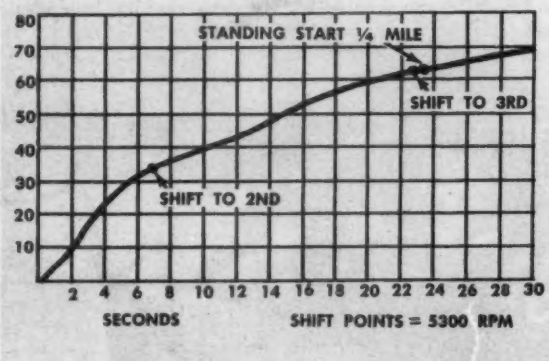


1—Voltage regulator
2—Cartridge-type oil filter
3—Distributor
4—Fuel pump and wiper booster
5—Oil level dipstick
6—Coil
7—Upper spring shock mounts
8—Radiator
9—Fan belt
10—Rocker arm cover
11—Oil filler neck
12—Generator
13—Single-throat carburetor (air cleaner removed)
14—12-volt, 40-amp./hr. battery
15—Starter relay
16—Spark plugs

MT | ROAD TEST '60 FALCON

Acceleration

0-45 mph 12.2 secs. 0-60 21.0
Quarter-mile 22.8 secs., 62.0 mph
30-50 9.0 45-60 8.8 50-80 29.8



Top Speed

Comfortable cruising From 50-70 mph
Maximum speed 85 mph

Stopping Distance

From 60 mph to standstill 189 ft.
Stop after maximum acceleration to end of ¼-mile 189 ft.

Gas Mileage

Over-the-road averages	Mpg	Mph
All types of roads, through small towns	24.4	43.4
2-lane, 4-lane, open road	25.2	60.3
2-lane, level, open road, high altitude	20.7	56.2
2-lane, 4-lane, mountain country	26.5	54.3
2-lane, open road, mountain and desert	25.2	53.8
Overall average for 2605-mile trip	25.6	51.8
City driving	23.4	
Constant speed, level road fuel checks	33.9	30
	31.6	45
	29.8	60

capable of makes this car a true economy car. Ford has achieved what the other two haven't.

Gas mileage over the road never went below 20 and went as high as 26.5 mpg (see table below), improving with more miles on the engine. On one leg we actually got 32 mpg, but this was mostly downhill running—from 6900 ft. to 3200 in 160 miles. Using our trip average (25.6) as the norm, you can figure that the Falcon's cruising range (mpg × tank capacity) is 258 miles.

Only 1½ quarts of oil were used. Why 1½? Because Ford engineers provided an oil sump with a capacity of 3½ quarts. This poses a problem, because oil is pretty generally dispensed in one-quart cans. Four quarts would be too much; three quarts not enough. One solution might be to fill with three quarts at the oil drain period, then add a fourth quart when one pint has been consumed. It might be well to fill with a measured 2½ quarts and file a mark on the dipstick to indicate when the fourth quart should be added. This is probably not the most desirable practice, but it is better than running with a high oil level, which would result if four full quarts were poured in.

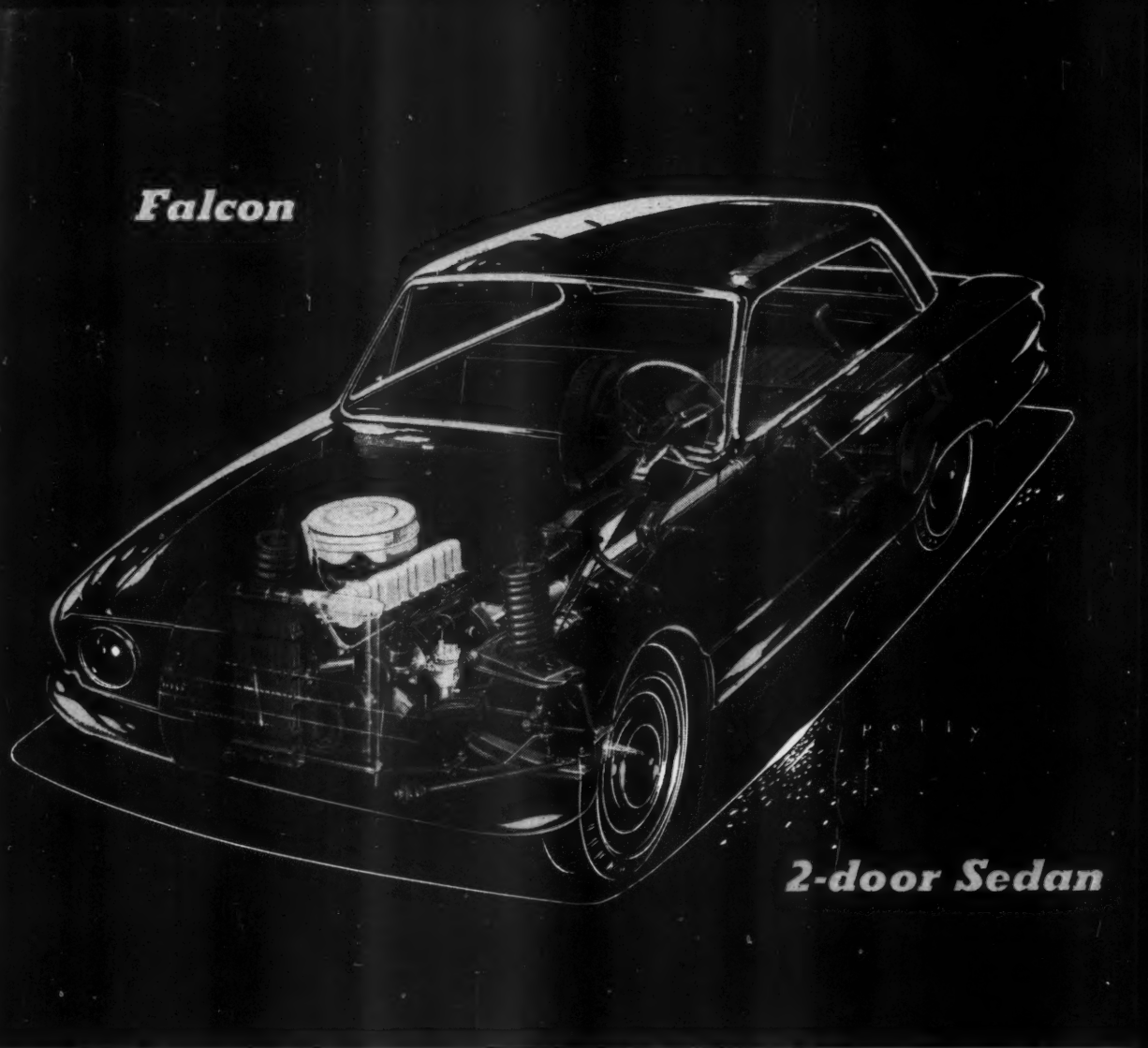
HOW IT STOPS The Falcon's brakes have a reasonably soft pedal action, so that even if you step out of a car with power brakes you don't need someone to help you stop the car. There's not much dip, the car always stopped in a straight line—even at quite high speeds. On long downgrades we did not notice any tendency to fade. Even later during our dragstrip runs for acceleration, the brakes held up. The T-handle parking brake, operating on the rear brakes only, could be used in an emergency if the hydraulic system failed.

HOW THE ACCESSORIES WORK The Falcon has no power assists and, frankly, doesn't need any. The two-speed automatic transmission, a scaled-down version of the standard Ford two-speed automatic, is an accessory worth the extra $159—especially to anyone who drives in traffic. It won't cost more than a mile or two per gallon and will leave you less tired at the end of a day's driving.

LUGGAGE AND TOOLS When you lift the counterbalanced lid of the quite generous trunk, the tools you'll find are a jack and wheel nut wrench. To lift out the spare tire (and pieces of luggage) you'll have to raise it almost a foot over the rear of the trunk. Though the volume of the trunk is listed as 23 cu. ft., the *usable* volume is much less: Maximum interior width of the trunk is 69 ins. and extends 47 ins. to the back of rear seat. Depth varies from 17 ins. at deck hinge to 11 ins. at loading lip; the spare tire and wheel wells encroach on this usable space.

SERVICING Because of the roominess under the hood all parts that might need servicing or tune-up are readily accessible. Not only should this encourage many owners to do their own tune-up work, but it will also reflect itself in lesser servicing charges at the corner garage. Though costs may vary in different localities due to prevailing hourly rates, a minor tune-up should cost about $8.50, a major tune-up about $16, with parts extra.

IS IT A GOOD BUY? The Falcon is a straightforward design with conventional styling, an uncomplicated overhead-valve, six-cyl. engine placed up front, the usual driveline position, conventional trunk location, seating for four or five, depending on the length of the trip, how much luggage you wish to carry and how friendly or how large the passengers are. The Falcon should appeal to those who want adequate performance (equal to a '53-'54 Ford and better than most imports), who like a well-built car, want nothing unusual in design and want a car with definite Ford family resemblance. It has a nominally good ride, is comfortable, fairly easy to drive, has average handling characteristics and delivers the best fuel economy of the three new compact cars.



HOW THE FALCON COMPARES TO THE CORVAIR AND VALIANT

How It's Put Together—*Better than Corvair and Valiant.*
In City Driving—*Not as good as Corvair and Valiant.*
For Highway Driving—*Equal to Corvair and Valiant.*
Ride—*Equal to Valiant, better than Corvair.*
Acceleration—*Equal to Corvair, not as good as Valiant.*
Mountain Driving—*Equal to Valiant, not as good as Corvair.*
On Poor Roads—*Not as good as Corvair and Valiant.*
Gas Mileage—*Better than Corvair and Valiant.*
How It Stops—*Equal to Corvair and Valiant.*
Trunk Space—*Better than Corvair, not as good as Valiant.*
Serviceability—*Better than Valiant, as good as Corvair.*

SPECIFICATIONS OF TEST CAR

ENGINE: Pushrod-operated, ohv, in-line 6. Bore 3.5 ins. Stroke 2.5 ins. Stroke/bore ratio 0.715. Compression ratio 8.7:1. Displacement 144.3 cu. ins. 1 single-barrel, downdraft carburetor. Single exhaust. Advertised bhp 90 @ 4200 rpm. Bhp per cu. in. 0.62. Max. torque 138 lbs.-ft. @ 2000 rpm.

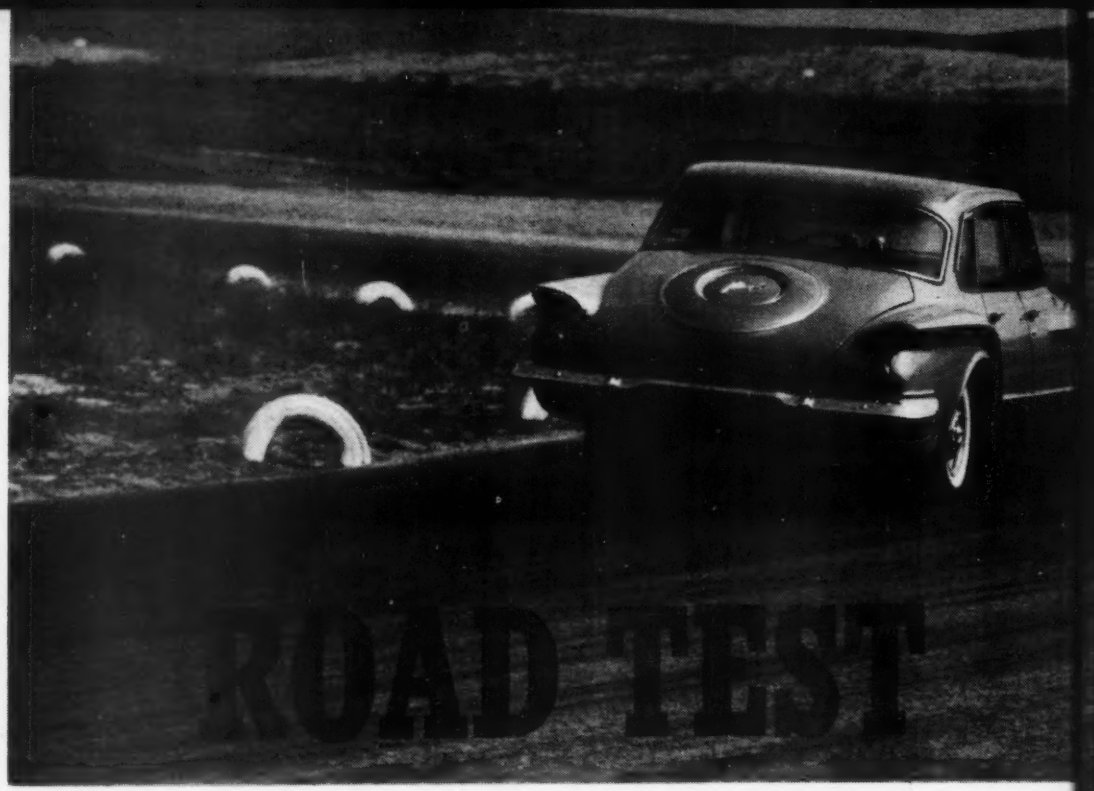
TRANSMISSION: Manual 3-speed. Ratios 3.29:1, 1.75:1, 1.00:1. No overdrive.

CHASSIS: Body-frame unit construction. Front suspension—Independent, A-frame control arms with coil springs. Rear suspension—Semi-elliptic 5-leaf springs 50 ins. long, 2 ins. wide, asymmetrically mounted. Torque taken by springs. 6.00 x 13 tires. Rear axle—Semi-floating, ratio 3.10:1. Steering—Recirculating ball, overall ratio 27.0:1, turning diameter 37.7 ft., 4.64 turns lock-to-lock. Brakes—Servo-assisted drum hydraulics. Total effective lining area 114.3 sq. ins. Weight/lining area ratio 97.3 sq. ins./ton.

DIMENSIONS: Wheelbase 109.5 ins., overall length 181.1, overall height 54.5, overall width 70.0, headroom—front 33.9, rear 32.8; legroom—front 43.3, rear 39.4; hiproom—front 57.1, rear 57.0. Tread—front 55.0, rear 54.5. Weight as tested 2350 lbs. (55% front, 45% rear). Weight/power ratio 26 lbs./hp.

PRICE: Factory-suggested base, f.o.b. Detroit $1912. As tested (approximate list) $2140.

ACCESSORIES: (prices approximate): Heater $68, radio $54, 2-speed automatic transmission $159.



ROAD TEST

MT TEST REPORT BY STEVE DA COSTA

ANYONE WHO HAS EVER DRIVEN an automobile more than 2000 miles cross-country—stopping only for meals, motels and more fuel—can attest to the fact that motoring is more than just a simple pleasure. When the car in your charge happens to be the very first of its make to hit the road under other than the seat of a company employee, the responsibility of the matter is sizably broadened. And at trail's end, when your duties are to report on your compiled statistics and general impressions, you'll be surprised to discover how quickly you have forgotten—or missed altogether—much of the enchantment of our wide lands.

After a quick jet flight from New York to Detroit we were driven (in an old last year's model Plymouth) directly to Plymouth/DeSoto Division, Chrysler Corp., where we were met by Public Relations Manager Charles W. Craig. This gentleman, whom we suspect has long been an old pro in the news game, straightaway herded us to the nearby Engineering Section. There we were taken in tow by a tall and friendly representative named Arch Newton, who in turn led us to the Valiant V-200, with which our destiny was to become involved for the ensuing cross-country journey.

This car is the result of "Project A-901," begun by the corporation in May, 1957 following 25 years of a continuous research and design program centered about a "small car." While we had had some sneak looks at photographs of the machine earlier in New York, this was our first exposure to the car itself. First impressions as to its appearance, later substantiated in solicited comments from sundry citizens encountered along the highroads, were that the Valiant resembled a tastefully styled, scaled-down "big car." With Messrs. Craig and Newton extolling the Valiant's virtues in highest praise, we fiddled with knobs, opened doors, kicked tires, peered into the engine and trunk compartments and bounced up and down on the front and rear seats of a standing model while a crew of Chrysler mechanics hurriedly finished last-minute preparations and adjustments of the green four-door sedan in which we were to drive off.

In size and concept the car falls into a category that includes the two other new members of the trio of "compact" American cars, plus the Rambler and the Lark. Except for price it might be well also to include four or five European imports such as the medium-class Mercedes-Benz, Peugeot, Lancia and Rover. The creature comforts inherent in most of these are readily noted in the Valiant, with but a few similar inconveniences. Termed a "completely new" car, its most distinctive "newest feature" is the 30-degree-inclined engine installation, mated to a transmission mounted in the same number of degrees to the right, or opposite, direction off center. For other engineering statistics not included in this article, readers are referred to last month's issue of MT in which a thorough comparison of the five top-line American reduced-size cars was made. *continued on page 40*

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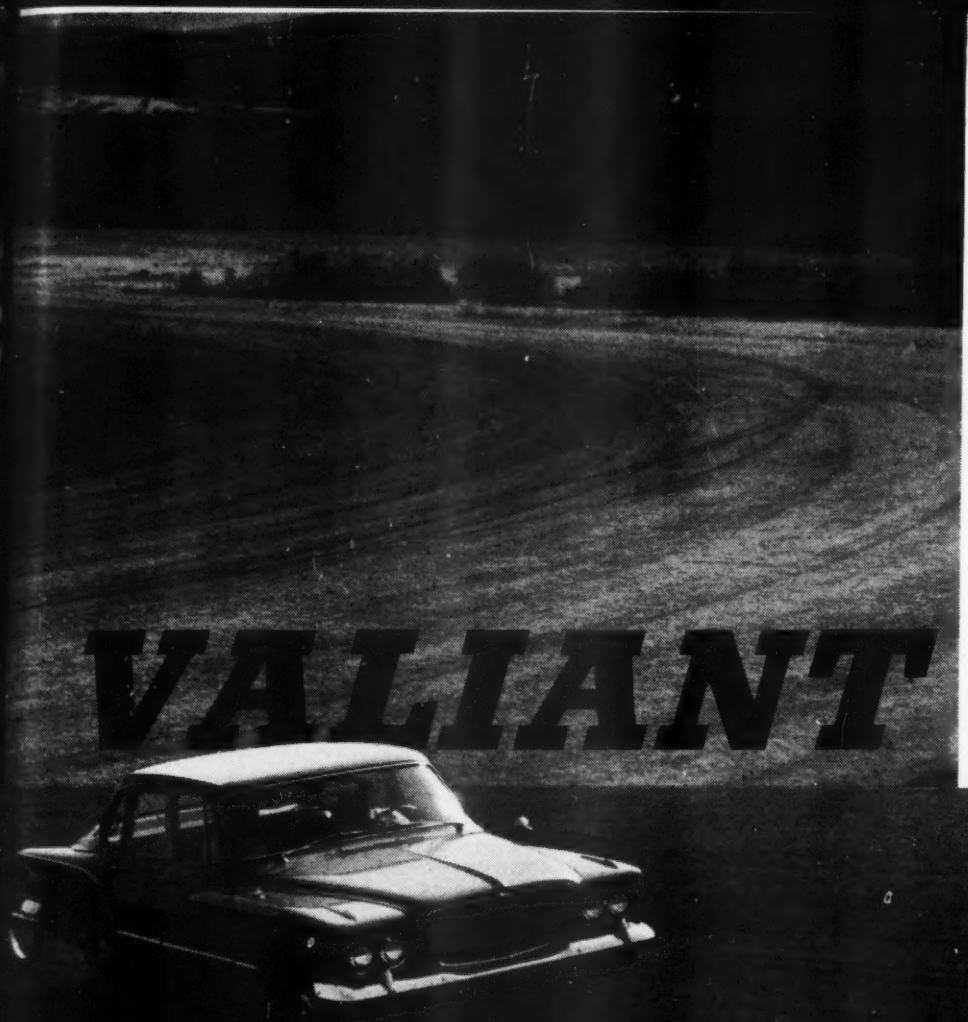


THE CAR AT A GLANCE

Things we like	Things we don't like
Lively performance	Comparatively low gas mileage
Maneuverability, parking ease	Non-synchromesh first gear
Handling qualities	Trim detail fit
Smooth ride, comfortable seats	Inadequate weatherproofing
Stopping ability	Gas filler pipe position
Trunk space	
Efficient heater and defroster	

VALIANT WAGONS ON COMPACT WHEELBASE ARE IN PRODUCTION. PRICES (F.O.B. DETROIT): 6-PASS. $2164 TO $2236, 9-PASS. $2278 TO $2350.

THE CAR WE TESTED Basic specs on our cross-country test Valiant: Body style—four-door sedan. Engine and drive train—170-cu.-in. inclined six with single-barrel downdraft carburetor, manual three-speed transmission synchronized in second and third gears only (automatic three-speed transmission optional). Accessories—radio, heater. Factory list price of car as equipped —approximately $2265.

IN THE DRIVER'S SEAT The deep-dish steering wheel fits nicely to hand—neither too high nor too low. The gearshift lever, mounted on the left side of the drive tunnel closest to driver, is precisely where it should be. Reach to second gear is a trifle long, requiring a lean forward from the driver's seat, but this could be corrected by heating and bending the stick to suit. In motion, the instruments through the wheel are easy to view, in either day or night driving, and headlight control knobs, heater and radio buttons and dials are well placed. We would like to see an oil pressure gauge instead of the "too-late" light.

A not-extreme windshield wrap gives a minimum of distortion, although on the test car there was what appeared to be a hair-thin seam running horizontally across the glass a little above eye level. The rear view mirror is suspended from the roof and eliminates any blocking of driver vision to the right fender line. A side view mirror is optional. Side and rear vision, with mirrors properly installed and adjusted, is unobstructed. Windwings operated stiffly but there was no trouble with other handles or controls. No "hot spots" were noticeable even when driving into the sun, and visors swung easily into good position as required.

PASSENGERS' SEATS In the front seat, three may be accommodated comfortably if they are average size or smaller, except that drive tunnel rises about four to five inches and on a car with stick shift it will be difficult for the driver to shift. All may sit shoulders-above-the-cowl so there is no craning of the neck to see through the windshield. Headroom dimension figures indicate adequate roominess but in reality taller individuals may find it necessary to remove hats while riding in the rear seat. Armrests are provided both front and rear, but again, as in the other two test cars, it was found that seating for six would be quite crowded for extended trips.

CITY DRIVING An automatic choke control brings engine revs on cold starts to the 800-900 range, and a reasonable wait is required before it will shut off by a jab at the accelerator pedal. When the engine is in proper tune, idling speed is about 480-500 rpm, and there's a good response to starting in all weather. The test car idled poorly and roughly at first, but a simple carburetor adjustment remedied the situation immediately.

Steering is very good in city traffic, even though the 4½ turns lock-to-lock is a higher number than we prefer. Recovery following a sharp turn was very good but a stiffness developed at about 2800 miles that required major servicing to correct. The barest minimum of wheel play is vigorously applauded, and the car gives you no nonsense of a wide swinging wheel. Parking is easy, and short spaces are met and overcome with dispatch, with a feeling of being in league with all but the most microscopic imported cars. Owners of small garages may now be able to close their doors for the first time—with the car inside!

ON THE HIGHWAY All along the route from Detroit to the California border are turnpikes and expressways so constructed as to allow for long, easy driving at high speeds. The Ohio Turnpike, driven for about 50 miles in the rain at night, was easily handled at 60-65 mph speeds. Here we noticed a good steadiness of track and the adequacy of headlighting. In the clear, choosing a range of steady speeds between 50-70 mph, there was no evidence of engine or body vibration. After the first 500 miles, in areas where it was both reasonable and prudent to increase speed, the speedo needle climbed easily to an indicated 80 mph. In one deserted stretch of a straight four-lane flat we ran momentarily up to an indicated 90 mph with no undue strain. Estimated top speed of this car should be in the 100-110 range.

Points of pitch, roll and dip were not impressive enough to be discomforting, but for those who like a varying degree of ride, the Torsion-Aire suspension system is adjustable. Factory settings of the test car's suspension seemed entirely suitable, and provided a solid and completely smooth ride throughout our trip.

Wind noise is another matter. With all windows closed tightly, conversation could be maintained at about normal level at high cruising speeds. At the same rate of travel, with one of the windows or side vents open for ventilation, quiet talk was difficult or impossible. Other road and tire noises were not strong enough to be objectionable. The longest day's travel consisted of 12½ hours, and while rest was welcome we did not experience any particular fatigue.

HOW IT ACCELERATES The added horsepower of the Valiant (101) over the Falcon (85) and the Corvair (80) lends quite an advantage of prestige and induces one to expect rather better clock results than those compiled in the accompanying chart. But taking into consideration the factors of weight and gear ratios, the Valiant has nothing to be ashamed of. In both city and country traffic the car has a definite feeling of ample power and responds very well to sudden depressions of the foot throttle. The over-square, 170-cu.-in. ohv engine is free from valve clatter at all but strained rpm. There is a satisfying sound of spinning wheels when you wish to get away in a hurry, and it's quite possible to break the rear end loose in an accelerating turn.

Second gear is its best gear, with a ratio of 1.83 to 1 in the manual transmission. First gear, with a ratio of 2.71, peaks at 38 mph. Shifting to second at about 25 mph in the standing start acceleration test for 0-60 provided the best time of 16.9 secs. Because of the smaller overall dimensions, which have made no sacrifices of structural rigidity, stopping power and agility, the Valiant has a safer feel than a number of larger and higher powered cars when "turned loose."

IN THE HILLS AND MOUNTAINS Mountain country, with divided four-lane asphalt and concrete roadways, was no challenge to the car and passing always was accomplished with greatest ease and safety. In areas where divided highways ended, diminishing to four lanes and then two, there was no surface encountered that created any difficulty in driving. It can safely be said that the car can be a nimble mountain goat or a desert jackrabbit as the occasion demands, with a powerplant as quiet and dependable as any found in modern automobiles. With a tire pressure of 24 psi all around there was no squeal and little body sway was experienced on relatively fast curves. There were no hills that required a downshift to pull, although on one or two occasions it was necessary to floor the throttle to maintain speed. Long downhill stretches were taken very lightfootedly, with no sign of engine strain in the legal 70-mph limit, and at no time did the engine overheat.

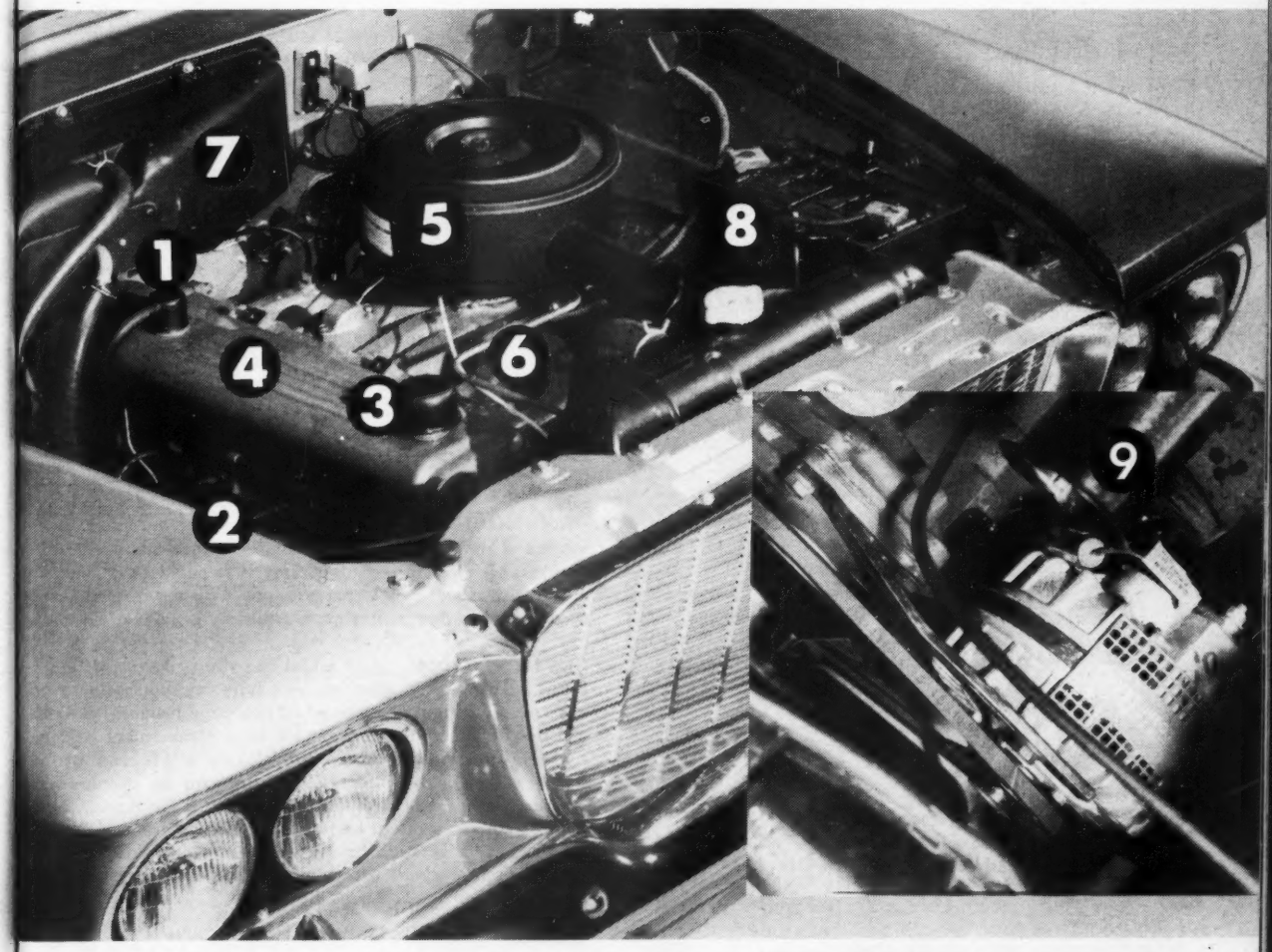
DRIVING IN BAD WEATHER Parts of the underhood front end structure designed to serve a dual purpose as strengthening components and shields to protect engine from road splash did not serve the latter function. Muddy roads left a red-caked blanket on the bottom third of the engine, with tosses of mud finding their way to all areas in the compartment. Added complaints were registered against the inadequacy of the windshield wipers in light to medium-heavy rain and the fact that eventually a stream of rain water was first visibly noticeable from the left windshield pillar.

The countersweep of the wipers covers the vision area well but tended to blur rather than wipe except in heaviest rains. Electrically powered, they can be controlled at varying speeds.

Pressing onward into the somewhat severe storm, we discovered a leak developing under the dash on the driver's side. On top of this, we found to our dismay that the luggage compartment cover leaked, soiling the exterior and some of the contents of our largest suitcase.

The heater and defroster unit was in almost constant use and is very effective, with well placed venting. Cool air vents are not adjustable; they're either wide open or tightly shut. For purposes of comfort we found that using a combination of open cool air vents and having the heater on in the low position worked well.

Unavoidable water puddles slowed the relatively lighter car

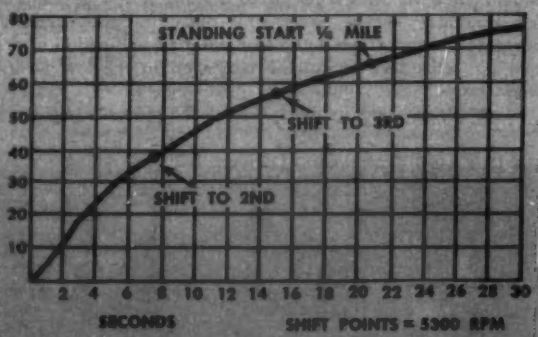


1—Oil breather
2—Spark plugs
3—Oil filler neck
4—Rocker arm cover
5—Air cleaner and single-throat downdraft carburetor
6—Long-tube cast aluminum intake manifold
7—Hot water heater
8—12-volt, 50-amp./hr. battery
9—Alternator, 3-phase with full-wave rectifier

MT | ROAD TEST '60 VALIANT

Acceleration

0-45 mph 10.0 secs. 0-60 17.2
Quarter-mile 20.5 secs., 66.1 mph
30-50 6.2 45-60 7.0 50-80 22.4



Top Speed

Comfortable cruising From 55 to 75 mph
Maximum speed 95-105 mph (estimated)

Stopping Distance

From 60 mph to standstill 182 ft.
Stop after maximum acceleration to end of ¼-mile 256 ft.

Gas Mileage

Over-the-road averages	Mpg	Mph
All types of roads, through small towns	16.9	40.8
Winding mountain roads, up to 7900 ft.	19.3	39.0
2-lane, 4-lane, open road	19.4	60.8
2-lane, level, open road, high altitude	17.6	45.4
2-lane, 4-lane mountain country	18.7	55.2
2-lane, mountain and desert, open road	18.4	50.5
2-lane, open desert country, up to 3900 ft.	22.6	47.3
Overall average for 2470-mile trip	18.9	48.4
City driving	15.4	
Constant speed, level road fuel checks	27.0	30.0
	22.5	45.0
	22.7	60.0

somewhat, but at all times the steering was unaffected and traction was straight and sure. Even on slickest wet surfaces, the Valiant not once got out of line.

POOR ROAD CONDITIONS Through detours and on unpaved road shoulders there was no shock transmitted to the steering wheel, even on patches strewn with large rocks. Once, in a line of cars being led over a turnpike construction, we noticed other drivers fighting the wheels of larger cars and displaying some tossing about of passengers; we experienced little discomfort.

GAS AND OIL MILEAGE On the test car, a leaner carburetor mixture might have upped the figures here with no power loss. Under controlled conditions we conducted fuel bottle tests that showed surprising maximums (see chart), using Flying A 100-Plus, Tidewater Oil Co.'s premium fuel. Regular fuel is recommended by the factory. Under normal driving conditions we fell short of the claimed ". . . up to 30 miles per gallon." In the Valiant it will be largely up to the individual driver, with the aid of fine carburetor adjustments, to choose between economy and performance. Mileage range, on the basis of our trip average of 18.9 mpg and a 13-gal. tank, is 246 miles.

By the way, station attendants took a dim view of the Valiant's filler pipe. It runs almost horizontally into the luggage compartment and steadfastly refuses to accept fuel poured from automatic pump nozzles without regurgitating violently.

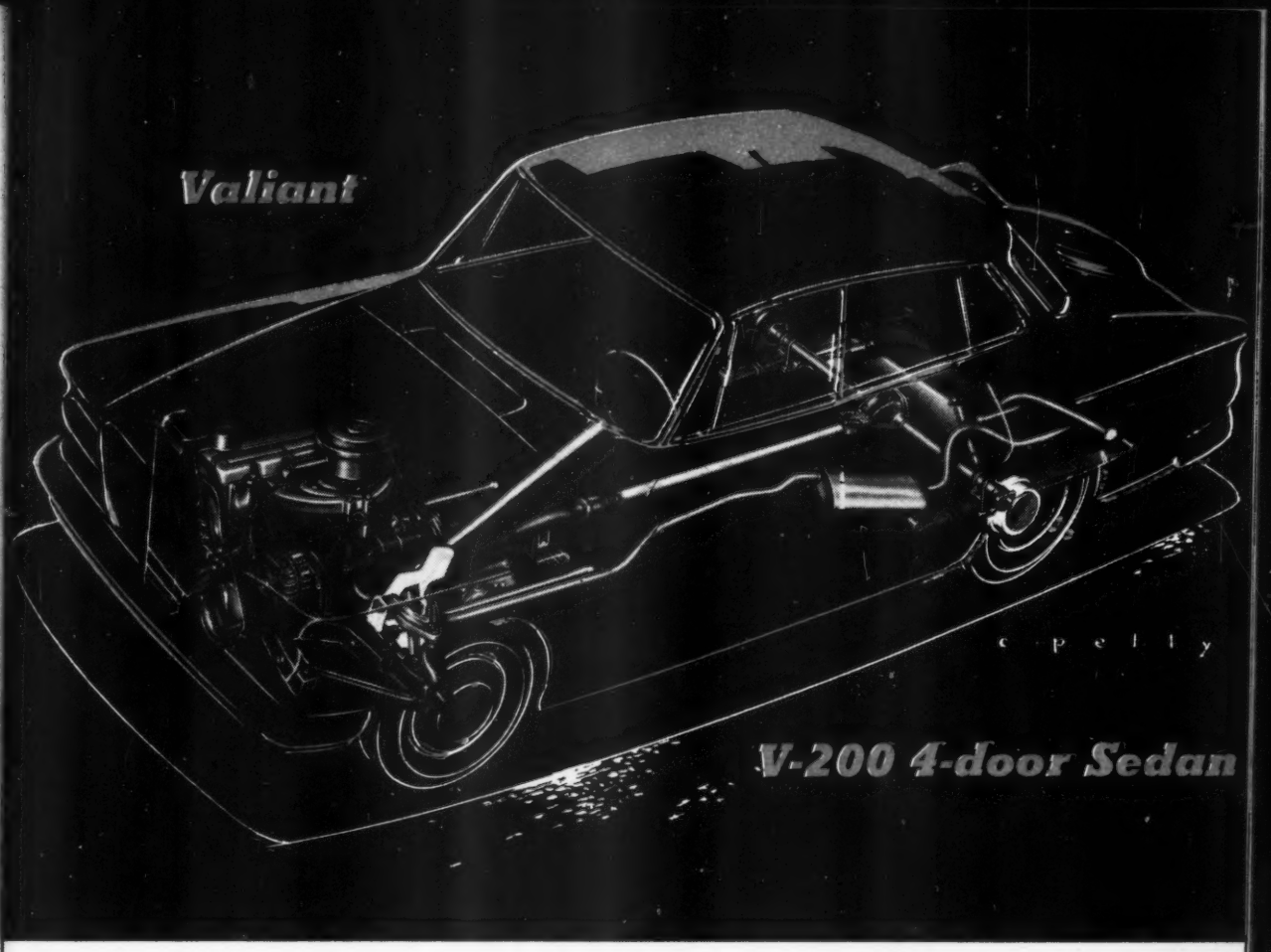
An oil change at 1000 miles revealed that not a half-pint was used, and after arriving in Los Angeles the dipstick showed clear evidence that the car is not an oil burner. Capacities: 13 gals. of gas, four quarts of oil.

HOW IT STOPS Even without power assist, there is no real complaint with braking power. Pedal action is a happy compromise between overly cautious toe-tip and straight-legged hard push. No fade was experienced on the trip but in the test area, where emergency stops were simulated, wheels tended to lock up. However, no detrimental effect to pedal travel was noted. Emergency brake is the push-down pedal type, released by a dash-mounted lever, and is operated mechanically on the rear wheels only. Equipped with automatic transmission, the car can be held on an incline with the lever in the "Park" position.

HOW THE ACCESSORIES WORK The Valiant V-200 sedan comes equipped with expected items such as turn signals, electric windshield wipers and oil filter, more brightwork than its less expensive sister, the V-100. A good transistorized radio and a high-output heater-defroster are options that few owners will want to be without. The automatic transmission, designed specifically for the inclined engine, is controlled by a row of illuminated pushbuttons, with three speeds forward plus reverse and park. Recirculating ball steering is standard on all models and was installed on the test car along with the manual three-speed gearbox. Power steering is available.

LUGGAGE AND TOOLS Spare wheel and tire is concealed underneath the trunk deck, allowing for a fully flat and spacious storage area. Our luggage consisted of two large matched suitcases, a hatbox, another small case and a camera equipment bag. All five items took only about two thirds of the *usable* space within. Total volume is listed as 24.9 cu. ft. with an opening that measures 47 ins. and 30 ins. at widest and longest points. Depth varies from seven ins. at leading lip to 20 ins. from deck hinge to deck; width between fender wells is 44 ins., with 14 ins. of height. From back of back seat to lid opening is cubic space with measurements of 21 ins. by 14 ins. by 44 ins.

SERVICING Because of engine incline a good work area has been provided. Although spark plugs now are closer to the fender wall there is sufficient space in which to apply a wrench. The new alternator, which replaces but does the work more easily of the conventional generator, is shorter in length and allows better



HOW THE VALIANT COMPARES TO THE CORVAIR AND FALCON

How It's Put Together—*Not as good as Corvair and Falcon.*
In City Driving—*Better than Corvair and Falcon.*
For Highway Driving—*Equal to Corvair and Falcon.*
Ride—*Better than Corvair, equal to Falcon.*
Acceleration—*Better than Corvair and Falcon.*
Mountain Driving—*Equal to Falcon, not as good as Corvair.*
On Poor Roads—*Better than Falcon, equal to Corvair.*
Gas Mileage—*Equal to Corvair, not as good as Falcon.*
How It Stops—*Equal to Corvair and Falcon.*
Trunk Space—*Better than Corvair and Falcon.*
Serviceability—*Not as good as Corvair and Falcon.*

SPECIFICATIONS OF TEST CAR

ENGINE: 30-degree-inclined ohv 6. Bore 3.40 ins. Stroke 3.125 ins. Stroke/bore ratio 0.92:1. Compression ratio 8.5:1. Displacement 170 cu. ins. 1 single-barrel downdraft carburetor. Single exhaust. Advertised bhp 101 @ 4400 rpm. Bhp per cu. in. 0.59. Max. torque 155 lbs.-ft. @ 2400 rpm.

TRANSMISSION: 3-speed manual (3-speed automatic with torque converter optional). Ratios 2.73:1, 1.83:1, 1.00:1.

CHASSIS: Body-frame unit construction. Front suspension—"Torsion-Aire" adjustable torsion bar, non-parallel control arms. Rear suspension—Asymmetrical, semi-elliptic leaf springs. 6.50 x 13 tires. Rear axle ratio 3.55:1 (3.33:1 optional). Steering—Recirculating ball, overall ratio 23.83:1, turning diameter 37.1 ft., 4.45 turns lock-to-lock. Brakes—Duo-servo drum hydraulics. Riveted shoes, total effective lining area 129.1 sq. ins. Weight/lining area ratio 90 sq. ins./ton.

DIMENSIONS: Wheelbase 106.5 ins., overall length 184.0, overall height 53.3, overall width 70.4, headroom—front 33.6, rear 33.4; legroom—front 44.4, rear 38.9; hiproom—front 57.0, rear 56.9. Tread—front 56.0, rear 55.5. Weight as tested 2866 lbs. Weight/power ratio 28.4 lbs./hp.

PRICE: Factory-suggested base, f.o.b. Detroit $2130. As tested (approximate list) $2265.

ACCESSORIES (prices approximate): Heater $74, power steering $73, radio $59, automatic transmission $172, power brakes $41.

access to fan belt repair and other parts in the forward area. Nothing appears crowded, and any Chrysler dealer should be able to handle maintenance and repair problems without the risks of exasperation from his mechanics. Tune-up labor costs will run no more than $7-$8. Body and fender men may have qualms with peaks and points, particularly the flare to the top line and fender extrusions, but little more so than on some cars of larger and more flamboyant lines. Lubrication and other services performed by the average service station can be easily attended—with the exception of the previously noted automatically introduced gasoline to the fuel tank.

IS IT A GOOD BUY? The all-new Valiant, with manual transmission, "regular" steering and "natural" brakes as tested, has characteristics certain to appeal to a large number of buyers. It has a good, straightforward design outside of its tilted-to-the-side engine, and styling has a familiar Chrysler family resemblance. There is about the same interior and trunk space as that of the Falcon, cornering and handling are between the Corvair and the Falcon, and performance is the best of the three. Add the advantages of the higher horsepower, subtract the disadvantages of detail and trim which undoubtedly will be corrected in short order, and the end result is Yes, the Valiant is an excellent buy.

'60 SPECIFICATIONS — ALL U.S. CARS

MAKE AND MODEL	Cylinder & Valve Arrangement	Maximum Bhp @ rpm	Maximum Torque—lbs.-ft. @ rpm	Bore & Stroke—ins.	Displacement—cu. ins.	Compression Ratio	Bhp/cu in. Displacement	Number carbs/barrels	Transmission Available	Rear Axle Ratios: Conventional	Rear Axle Ratios: Overdrive	Rear Axle Ratios: Automatic	Dimensions (ins.): Wheelbase	Dimensions (ins.): Widest Tread	Dimensions (ins.): Overall Length	Dimensions (ins.): Overall Width	Dimensions (ins.): Overall Height—Sedan	Steer'g Wheel Turns—Lock-to-Lock: Mechanical	Steer'g Wheel Turns—Lock-to-Lock: Power	Turning Circle—feet	Standard Tire Size	Approx. Shipping Weight 4-D Sedan
Buick Le Sabre	V8-O	250@4400	384@2400	4.13x3.40	364	8.5	.69	1/2	C, A	3.90	—	3.07	123	62	218	80	57	NA	NA	NA	7.60x15	NA
Invicta	V8-O	325@4400	445@2800	4.19x3.64	401	10.25	.81	1/4	A	—	—	3.23	126	62	218	80	57	NA	NA	NA	7.60x15	NA
Electra	V8-O	325@4400	445@2800	4.19x3.64	401	10.25	.81	1/4	A	—	—	3.23	126	62	226	80	57	NA	NA	NA	8.00x15	NA
Cadillac 60	V8-O	325@4800	430@3100	4.00x3.88	390	10.5	.84	1/4	A	—	—	2.94	130	61	225	80	56	—	NA	51	8.00x15	NA
62 Sedan	V8-O	325@4800	430@3100	4.00x3.88	390	10.5	.84	1/4	A	—	—	2.94	130	61	225	80	56	—	NA	51	8.00x15	4805
Eldorado Seville	V8-O	345@4800	435@3400	4.00x3.88	390	10.5	.89	3/2	A	—	—	3.21	130	61	225	79	55	—	NA	51	8.20x15	NA
Fleetwood Limousine	V8-O	325@4800	430@3100	4.00x3.88	390	10.5	.84	1/4	A	—	—	3.36	150	61	245	80	59	—	NA	51	8.20x15	5475
Chevrolet Biscayne, Bel Air,	6-O	135@4000	217@2000	3.56x3.94	236	8.25	.58	1/1	C, OD, A	3.55	3.70	3.36	119	60	211	81	56	5.8	5.2	44	7.50x14	3550
Impala	V8-O	170@4200	275@2000	3.88x3.00	283	8.5	.60	1/2	C, OD, A	3.36	3.70	3.36	119	60	211	81	56	5.8	5.2	44	7.50x14	3650
	V8-O	250@4400	355@2800	4.13x3.25	348	9.5	.72	1/4	C, OD, A	3.36	3.70	3.08	119	60	211	81	56	5.8	5.2	44	7.50x14	3650
Corvette	V8-O	230@4800	300@3000	3.88x3.00	283	9.5	.81	1/4	C, A	3.70	3.70	3.55	102	59	177	73	52	3.7	—	39	6.70x15	2840
Corvair	6-O	80@4400	125@2400	3.40x2.60	140	8.0	.63	2/1	C, A	3.55	—	3.55	108	54	180	67	51	5.0	—	41	6.50x13	2340
Chrysler Windsor	V8-O	305@4600	410@2400	4.03x3.75	383	10.1	.80	1/2	A	—	—	2.93	122	61	216	80	56	5.5	3.5	47	8.00x14	3800
Saratoga	V8-O	325@4600	425@2800	4.03x3.75	383	10.1	.85	1/4	A	—	—	2.93	122	61	219	79	55	—	3.5	50	8.50x14	4010
New Yorker	V8-O	350@4600	470@2800	4.18x3.75	413	10.1	.85	1/4	A	—	—	2.93	126	61	220	80	56	—	3.5	50	9.00x14	4120
300-F	V8-O	380@5000	450@3500	4.18x3.75	413	10.1	.92	2/4	A	—	—	3.31	126	61	221	80	55	5.2	3.5	47	9.00x14	4350
Valiant	6-O	101@4400	155@2400	3.40x3.13	170	8.5	.60	1/1	C, A	3.55	—	3.23	107	56	184	70	53	4.5	—	37.1	6.50x13	2655
Imperial	V8-O	250@4600	470@2800	4.18x3.75	413	10.1	.85	1/4	A	—	—	2.93	129	62	226	80	57	—	3.5	NA	8.20x15	NA
De Soto Firesite	V8-O	295@4500	390@2400	4.12x3.38	361	10.0	.82	1/2	C, A	3.54	—	2.93	122	61	215	79	55	5.5	3.5	47	8.00x14	NA
Adventurer	V8-O	330@4600	460@2800	4.25x3.38	383	10.0	.85	1/4	A	—	—	2.93	122	61	217	79	55	5.5	3.5	47	8.00x14	NA
Dodge Matador, Polara	V8-O	295@4600	390@2400	4.12x3.38	361	10.0	.82	1/2	C, A	3.54	—	3.31	122	62	213	78	55	5.5	3.5	47	8.00x14	NA
	V8-O	330@4600	460@2800	4.25x3.38	383	10.0	.86	2/4	C, A	3.54	—	3.31	122	61	213	78	55	5.5	3.5	47	8.00x14	NA
Dart Seneca, Pioneer, Phoenix	6-O	145@4000	215@2800	3.40x4.13	225	8.5	.67	1/4	C, A	3.54	—	3.31	118	62	209	78	55	5.5	3.5	47	7.50x14	NA
	V8-O	230@4400	340@2400	3.91x3.31	318	9.0	.71	1/4	C, A	3.54	—	3.31	118	62	215	78	55	5.5	3.5	47	8.00x14	NA
	V8-O	330@4800	400@2800	4.25x3.38	383	10.0	.85	2/4	C, A	3.54	—	3.31	118	62	215	78	55	5.5	3.5	47	8.00x14	NA
Edsel Ranger	6-O	145@4000	206@2000	3.62x3.60	223	8.4	.65	1/1	C, A	3.56	—	3.56	120	61	216	82	60	5.0	5.0	43	7.50x14	3775
	V8-O	185@4200	282@2200	3.75x3.30	292	8.8	.65	1/2	C, A	3.56	—	3.10	120	61	216	82	60	5.0	5.0	43	7.50x14	3885
	V8-O	300@4800	381@3800	4.00x3.50	352	9.6	.85	2/4	C, A	3.56	—	2.91	120	61	215	82	60	5.0	5.0	43	8.00x14	3885
Ford Fairlane	6-O	145@4000	206@2000	3.62x3.60	223	8.4	.65	1/1	C, OD, A	3.56	3.89	3.56	119	61	214	81	55	5.0	5.0	43	7.50x14	3706
Fairlane 500	V8-O	185@4200	292@2200	3.75x3.30	292	8.8	.65	1/2	C, OD, A	3.56	3.89	3.10	119	61	214	81	55	5.0	5.0	43	7.50x14	3710
Galaxie	V8-O	235@4400	350@2400	4.00x3.50	352	8.9	.65	1/2	C, OD, A	3.56	3.56	2.91	119	61	214	81	55	5.0	5.0	43	8.00x14	3667
Falcon	6-O	85@4000	138@2000	3.50x2.50	144	8.7	.59	1/1	C, A	3.10	—	3.10	110	55	181	70	55	4.6	—	38	6.00x13	2320
Thunderbird	V8-O	300@4600	381@2800	4.00x3.50	352	9.6	.85	1/4	C, OD, A	3.70	3.70	3.10	113	60	205	77	53	4.1	4.1	43	8.00x14	3897
Lincoln and Continental Mark V	V8-O	315@4100	465@2200	4.30x3.70	430	10.0	.73	1/2	A	—	—	2.89	131	61	227	80	57	—	3.2	48	9.50x14	5016
Mercury Monterey	V8-O	205@4000	328@2100	3.80x3.44	312	8.9	.64	1/2	C, A	3.56	—	3.10	126	60	219	82	56	5.4	3.7	44	8.00x14	4239
Montclair and Park Lane	V8-O	310@4100	460@2200	4.30x3.70	430	10.0	.72	1/2	A	2.71	—	2.71	126	60	219	82	58	—	3.7	44	9.00x14	4733
Oldsmobile Dynamic 88	V8-O	240@4400	375@2400	4.00x3.69	371	8.75	.65	1/2	C, A	3.42	—	2.87	123	—	218	81	56	6.1	4.0	48	8.50x14	4351
Super 88	V8-O	315@4600	435@2800	4.13x3.69	394	9.75	.80	1/4	C, A	3.42	—	3.07	123	—	218	81	56	6.1	4.0	48	8.50x14	4370
98	V8-O	315@4600	435@2800	4.13x3.69	394	9.75	.80	1/4	A	—	—	3.23	126	—	221	81	56	—	4.0	47	9.00x14	4518
Pontiac Catalina, Ventura	V8-O	215@3600	380@2000	4.05x3.75	389	8.6	.55	1/2	A	—	—	2.69	122	64	214	80	57	5.6	4.06	45.6	8.00x14	NA
Star Chief	V8-O	281@4400	407@2800	4.06x3.75	389	8.6	.72	1/4	C, A	3.23	—	3.08	124	64	221	80	57	5.6	4.06	46.7	8.00x14	NA
Bonneville	V8-O	318@4600	430@3200	4.06x3.75	389	10.7	.82	3/2	C, A	3.23	—	3.08	124	64	221	80	57	5.6	4.06	46.7	8.00x14	NA
Plymouth Savoy, Belvedere, Fury	6-O	145@4000	215@2800	3.40x4.13	225	8.5	.65	1/1	C, A	3.54	—	3.31	118	61	209	79	55	5.5	3.5	45.4	7.50x14	NA
	V8-O	230@4400	340@2400	3.91x3.31	318	9.0	.72	1/2	C, A	3.54	—	3.31	118	61	209	79	55	5.5	3.5	46.7	7.50x14	NA
	V8-O	305@4800	395@3000	4.12x3.38	361	10.0	.85	1/4	C, A	3.54	—	3.31	118	61	209	79	55	—	—	45.3	7.50x14	NA
	V8-O	330@4800	400@2800	4.25x3.38	383	10.0	.86	2/4	C, A	3.54	—	2.93	118	61	209	79	55	—	—	46.7	7.50x14	NA
Rambler Six	6-O	127@4200	180@1600	3.13x4.25	196	8.7	.66	1/1	C, OD, A	3.78	4.11	3.31	108	58	190	73	57	4.7	4.19	39.45	6.40x15	2950
Rebel	V8-O	200@4900	245@2500	3.50x3.25	250	8.7	.80	1/2	C, OD, A	4.10	4.10	3.15	108	59	190	73	57	4.7	4.19	39.67	7.50x14	3290
Ambassador	V8-O	250@4700	340@2600	4.00x3.25	327	8.7	.77	1/2	C, OD, A	3.54	3.54	2.87	117	59	199	72	57	4.7	4.19	41.75	8.00x14	3430
American	6-L	90@3800	150@1600	3.12x4.25	196	8.0	.46	1/1	C, OD, A	3.31	3.78	3.31	100	55	178	73	57	3.9	3.12	37.9	5.90x15	2475
Studebaker Lark, Hawk	6-L	90@4800	145@2000	3.00x4.00	170	8.3	.53	1/1	C, OD, A	3.73	4.10	3.73	109	57	179	71	58	5.0	NA	37.6	5.90x15	NA
	V8-O	180@4500	260@2800	3.56x3.25	259	8.8	.70	1/2	C, OD, A	3.31	3.31	3.07	121	57	175	71	58	4.5	4.5	37.6	6.70x15	NA

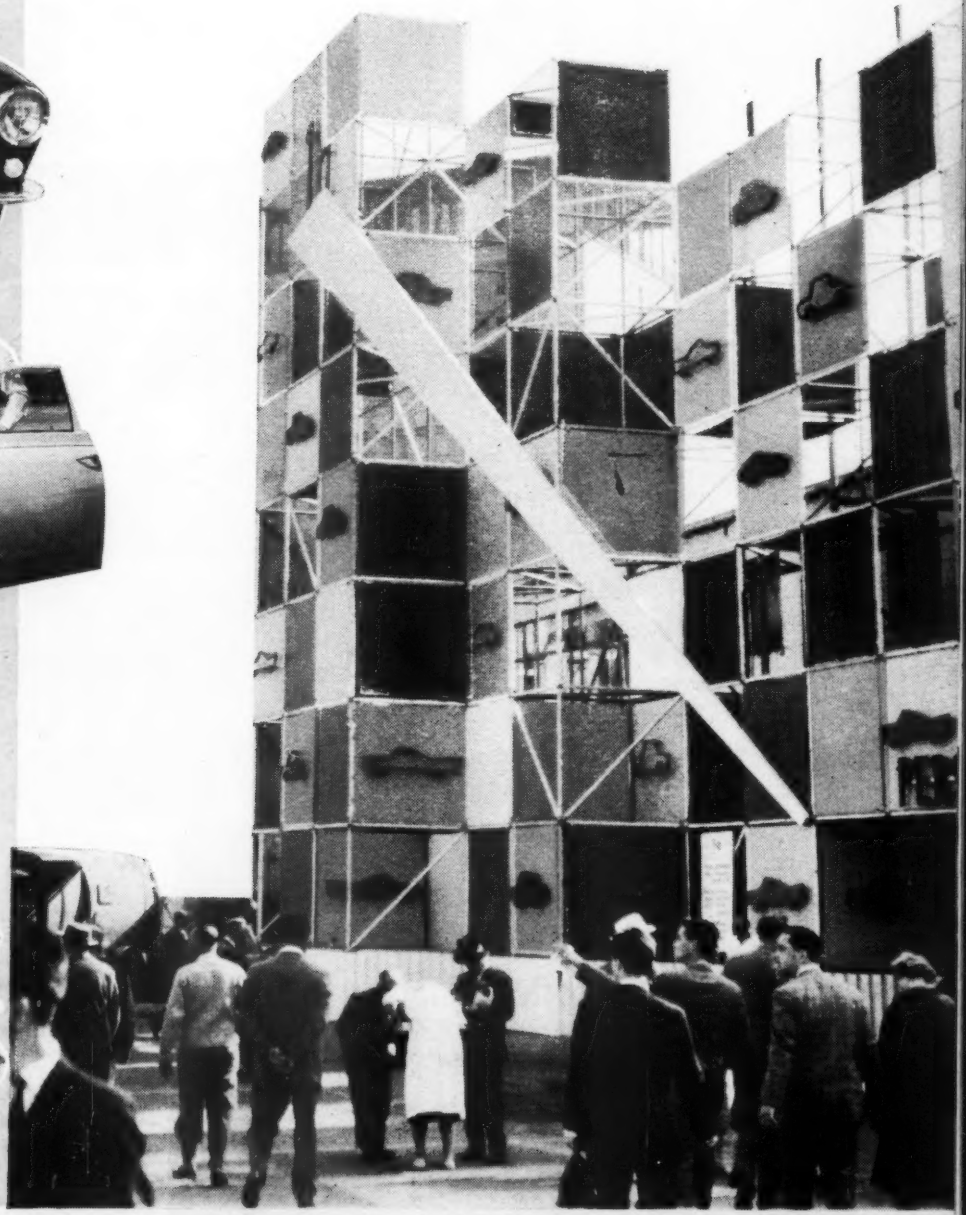
A—Automatic transmission
C—Conventional transmission
L—L-head (side valves)
NA—Information not available

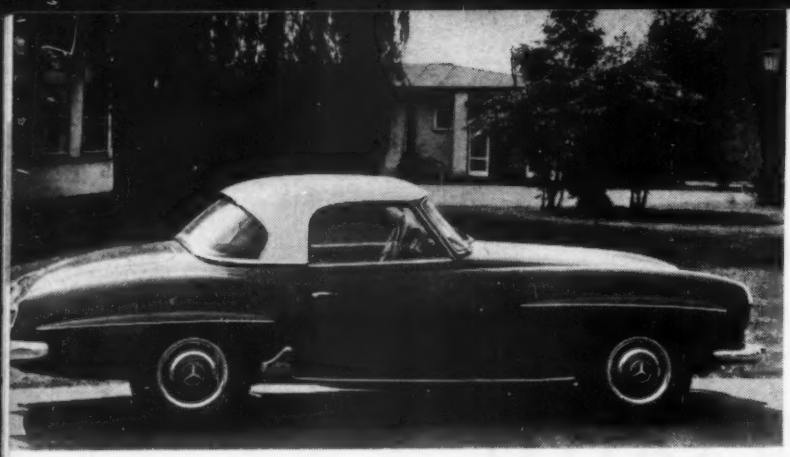
O—Overhead valves
OD—Overdrive transmission

— —Not offered

Specifications above are for standard or typical features. For special options in engines, carburetion, exhausts, transmissions, rear axle ratios, power accessories, etc., contact local dealer or manufacturer.

GUIDE TO THE '60 IMPORTS





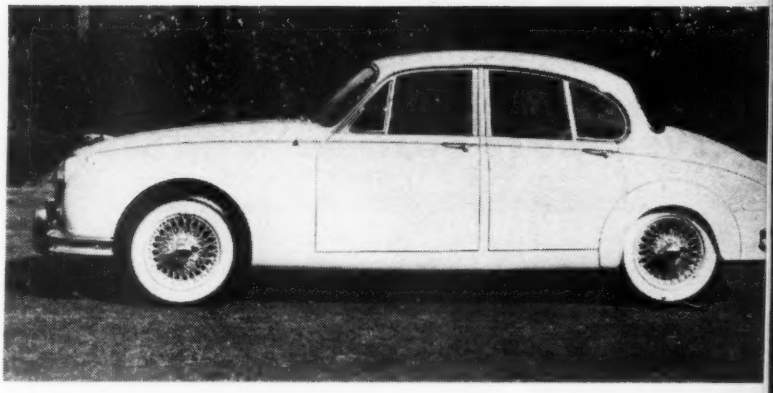
Mercedes-Benz 190-SL touring sports car for 1960 features but one change, an improved removable hard top, with a greater glass area in the rear.

Paris London

SHOWTIME 1960

Simca adds a budget-priced, economy sedan to its line this year with the introduction of the Etoile, pictured above. Powerplant is a 50-hp "Flash" ohv engine, car has unit-frame construction and carries up to five passengers comfortably. The new Peugeot 403, at left, is a convertible and has a detachable hard top available. Trim, neat lines of these two successful French imports, together with their modest operating costs, should attract a good number of discerning buyers. Chrysler Corp. controls Simca distribution while Peugeot is teamed with Renault for U.S. sales and service.

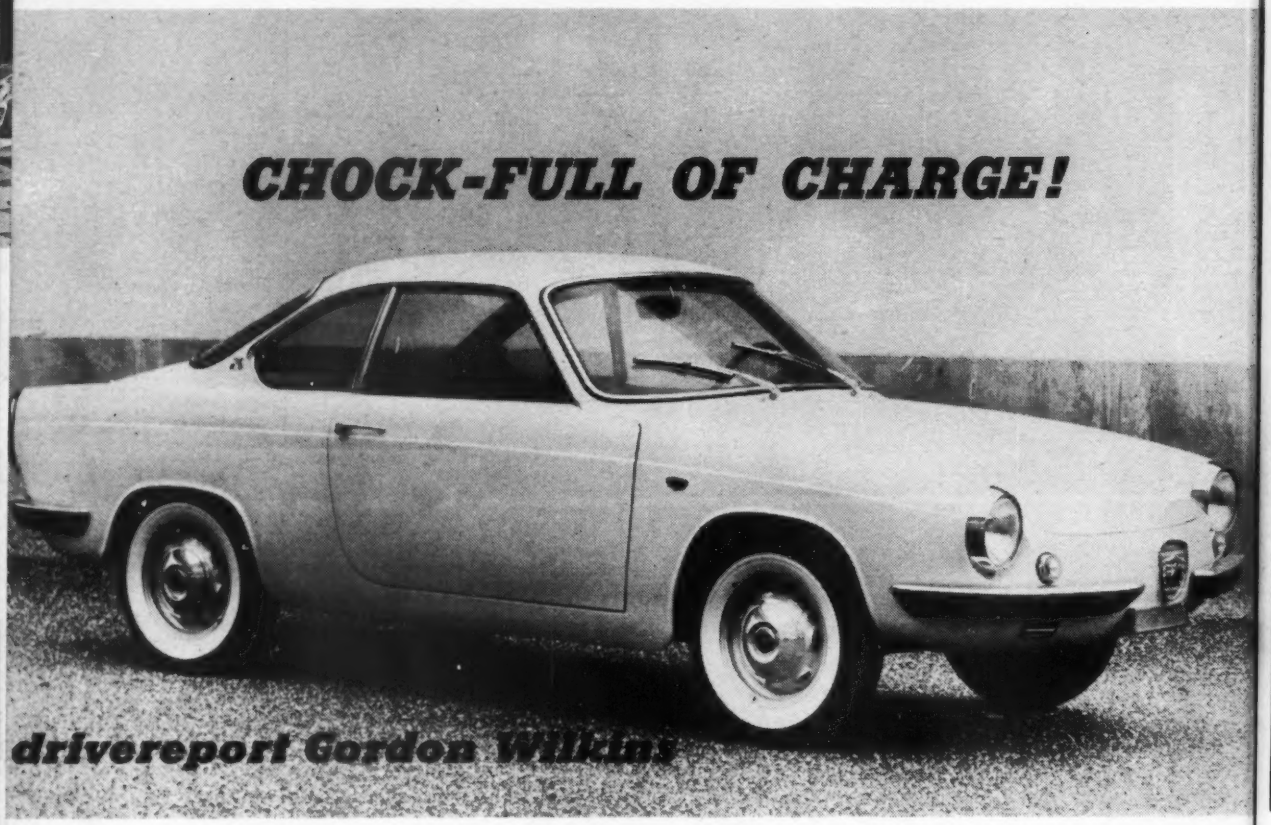
Above: The 1960 Fiat 2100 coupe is a new four-passenger model that looks able to provide sedan-like comfort, and so uncluttered as to closely resemble a California custom. Finless, austere, yet equipped with dual headlights, white sidewalls, a choice selection of desirable accessories, the car is an outstanding example of Pinin Farina styling and quality of workmanship.



Above right: The much-discussed and much-modified Jaguar Mark II "Three Point Eight" (signifying liter capacity) sedan, features traditional Jaguar luxury with power steering, four-wheel disc brakes, polished walnut dashboard, occasional tables built into the rear seating compartment and glove leather upholstery. Wire wheels, white sidewall tires are optional.

Right: The Bristol Zagato Grand Touring coupe, a new entry of Bristol Cars, is lighter in weight than the standard type 406, with a modified version of the 406 engine that incorporates a higher compression ratio and hotter cam. Note dual exhausts, slim and trim Italian influence in styling. A two-door, four passengers can ride, but a GT is made for seating only two.

CHOCK-FULL OF CHARGE!



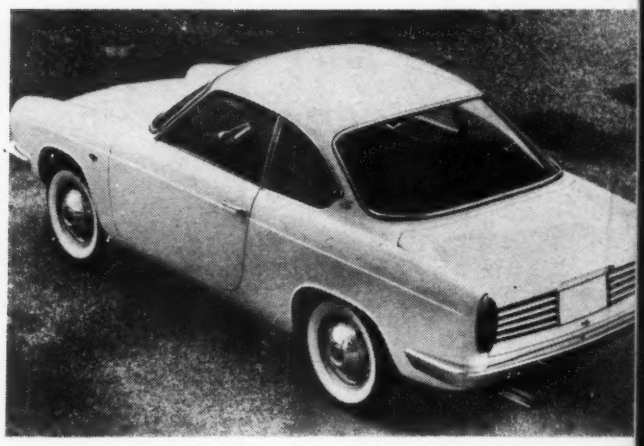
drivereport Gordon Wilkins

IT LOOKS SO SMALL and so beautiful that a woman might well wonder whether to drive it or hang it on a charm bracelet. To a man it looks fragile and delicate, until you insinuate yourself into the interior and experience its precocious performance. Understructure and road gear are by Abarth out of Fiat 600 as on previous models. The body is a new coupe by Allemano which gets its effect by clarity of line, with no applied decoration beyond a small simulated grille at the front carrying the nameplate.

After the fabulous 750 Bialbero (and there is now an 850 Bialbero too) this 850 pushrod job comes as a quieter, more flexible machine more suitable for everyday use—but fast. Engine is derived from the 750 which, in turn, grew out of the Fiat 600, but now little of the original remains beyond the block casting. Bore and stroke are both increased over the 750 to 2.42 x 2.69 ins., giving 833cc or a tiny 50.8 cu. ins. With a single Weber carburetor and a 9 to 1 compression, this husky baby turns out 52 bhp at 6000 rpm, a rise of nine hp over the equivalent 750 unit. It does not have the pulse-quickening rasp and snarl of the fabulous Bialbero twin-cam competition engine; it is designed for a different purpose—to provide a fast, tractable road machine with a certain amount of competition potential. It has more torque and is more flexible but there's enough of a sportscar note when accelerating on full throttle to indicate that some lusty horses are going to work. Yet when cruising fast on a light throttle the car is unexpectedly quiet.

Before the 850 engine was ready, this new Allemano coupe was tried out with a 750 pushrod engine taken from one of the streamlined Zagato competition coupes. The Allemano has steel panels and aluminum doors and is styled for comfort and good all-around vision rather than flat-out speed. Furthermore, it weighs 110 lbs. more than the alloy-panelled Zagato. But when they got the road test results, the technicians began reaching for their slide rules with surprised expressions, for the same engine gave exactly the same maximum speed—93.5 mph—in both cars.

The 850 Allemano is a mere 46.5 ins. high, but inside it I had three ins. of headroom. Interest in the American market was apparent from the calibrations in mph on the speedometer and the thermometer reading in degrees Fahrenheit instead of Centigrade. Trim and accessories are fashioned with the craftsman's care one expects of an Italian coachbuilder. Seats, with slim, space-saving cushions and backrests, are firm but comfortable. Pedals, including the long spatu-



Original 600cc Fiat block enlarged to 833cc capacity, and high compression pistons (upper right), combine to make the Allemano a potent little engine. Heavier connecting rods, billet crank and larger main bearings compensate for the added pressures of 52 bhp at 6000 rpm if it is desired to use the little road machine for all-out competition. A double overhead camshaft version of this small powerplant produces 70 bhp and will turn over 7000 rpm with ease.

SPECIFICATIONS

ENGINE: Rear-mounted in-line ohv 4. Bore 2.42 ins. Stroke 2.69 ins. Stroke/bore ratio 1.11:1. Compression ratio 9:1. Displacement 50.8 cu. ins. (833cc). Single Weber carburetor. Advertised bhp 52 @ 6000 rpm. Bhp/cu. in. 1.02. Max. torque 51.4 lbs.-ft. @ 4500 rpm.

TRANSMISSION: Manual 4-speed gearbox, top 3 synchronized; floor-mounted shift lever. Dry single-plate clutch. Ratios 3.39:1, 2.06:1, 1.33:1, 0.90:1; reverse 4.28:1.

CHASSIS: Box-section sheet metal frame. Front suspension—Independent with transverse leaf springs, top swinging arms and telescopic hydraulic shocks. Rear suspension—Independent with swinging arms, coil springs and telescopic hydraulic shocks. 5.20 x 12 tires. Rear axle ratio 4.55:1. Brakes—Drum-type hydraulic.

DIMENSIONS: Wheelbase 78.0 ins., overall length 140.4, overall height 46.5, overall width 55.4. Tread—front 44.9, rear 45.2. Weight (dry) 1320 lbs.

PRICE (f.o.b. factory): $2625.

late accelerator, are exactly right. Gear lever and hand brake are in the center with mixture and starter controls on the center tunnel.

The speedometer was wildly optimistic, and the needle swung around to 100 mph with ridiculous ease, but even after a few checks with the stop watch had put things in perspective, the performance is highly creditable for a simple pushrod engine no bigger than one of the eight cylinders of some current U.S. power units. Changing at 6500 rpm, first gear gives 30 mph, second 51, and third 67. Quick checks, which can be regarded only as approximate, showed acceleration from 0-50 mph in 9.4 secs. after correction and 0-60 in 15.1 secs. The acceleration is well maintained high up, and 80 is reached in about 33 secs. Flat out, I saw 112 mph on the speedometer which would be about 96-97 mph after correction. Handling is like other Fiat Abarths—quick, responsive steering and a flat sports-car ride with a distinct oversteer characteristic at high cornering speeds with full power on. At lower speeds steering feels neutral. Quick work with the wrists and the right amount of finesse with the throttle pedal enable it to perform acrobatic feats on twisty roads which are reflected in an ever-growing record of competition successes.

It is significant and perhaps symbolic that in the two-page detailed technical specifications I received from the factory, the word "brakes" is not once mentioned. These cars have brakes just as they have lights, windshield wipers and the other details which the law requires, but Fiat Abarths are built to go fast—not to dawdle with the brakes on. Brake drums are now wider than the original Fiat 600 drums on the early Abarths, and drums of bigger diameter will probably be used in production. There is still some vibration when they are applied at high speed accompanied by slightly more perceptible retardation, but this car is not for you if you haven't learned to use the gearbox going up *and* coming down. An experimental model is at present running with British disc brakes but my guess is that they will necessitate reinforcement of the front suspension and that would mean extra weight, which Mr. Abarth deplores.

So there it is—a lovely, lively little thing which gets attention in inverse ratio to its size. Not a car for the heavy-footed and hamfisted, but something to be savored by the connoisseur who appreciates precision in a small package; the automotive equivalent of the miniature painting, the vest-pocket camera, the pocket radio or the ultra-slim wrist watch. And naturally, it isn't cheap. Price at factory in Italy is $2625.

drivereport Gordon Wilkins

New ANGLE on the ANGLIA

AFTER DRIVING THE NEW ANGLIA for a while you find yourself comparing it with larger cars outside its price and displacement class. It has remarkable interior space, and when cruising fast it is smooth, free from noise and clamor. It is so silky and quiet at 50 in *third* that I can imagine people used to the old three-speed clangers just forgetting to change into top gear, which sounds as effortless as overdrive. The pistons just flutter up and down those 1.9 ins. of stroke as the crank spins 3740 rpm for a cruising speed of 60 mph.

As a mate to the brand-new short-stroke engine, Ford has developed a four-speed gearbox. Like any piston area engine, output and top speeds are higher *at the top end;* however, bottom end (low rpm) suffers. Thus, what little lugging was possible with the old 100-E 1172cc engine is now a thing of the past. Engine revs will have to be kept quite high to get any power at all. What Ford has done is to modernize the Anglia for modern driving, in both engine design and appointment.

Two separate front seats, with boldly curved backrests, are unusually comfortable, and with the seat fully back there is legroom for really tall drivers. Even in this position, knee room in the rear seats is about nine ins. Two-spoke wheel, gear lever, and pedals are well placed, and the pull-up hand brake lies between the seats. The driver sees all four corners of the car and has a good forward view over the low hood.

Speedometer, odometer, fuel gauge, thermometer, and warning lights for generator charge, turn indicator, oil pressure and headlight beam are grouped handily before the driver. Steering is light with 2¾ turns lock-to-lock. Turning circle is 32 ft. (a reduction of 2½ ft. compared to the old Anglia).

Letting the clutch in with a rush for quick getaway produces no axle hop and the acceleration is lively. I saw an indicated 42 mph in second gear, 70 in third and 80 in top. Genuine maximum is nearer 74-75 mph. To reach 30 takes about 7 secs., 50 about 16 secs., but then acceleration drops: 60 takes about half a minute.

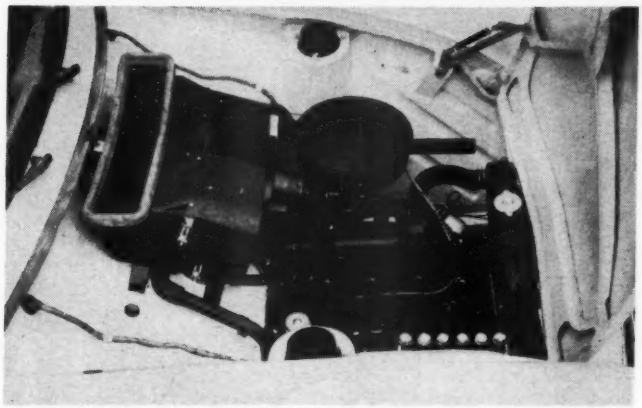
Departing from usual practice, Ford engineers have stiffened front suspension and anti-roll bar, to give approximately equal bound and rebound front and rear. The car is beautifully light to handle in corners and is practically viceless. Even on the eroded concrete surface of an old war-time airfield, with plenty of bumps, it held the desired line perfectly. There is only moderate roll, and new steering gear provides lightness of handling.

Outstanding impression is of quietness, stability and complete predictability. In hot cornering, the tires take big slip angles, but the engine cannot maintain them and tire drag slows the car down to its maximum cornering speed.

The brakes are up to the job. Ten consecutive quick slowdowns from 60 to 20 mph produced increased pedal travel and fade, but recovery was rapid. The Anglia is truly a great-hearted small car with a big interior and a big future.

With a U.S. sale in 1959 of around 22,000 Anglias, Ford officials are looking forward to even more sales in '60 with their new car. At $1663 base price, they have cause for optimism.

Anglia equipment includes electric wipers, lockable glove box, self-cancelling turn indicators, interior light and two-tone interior trim. Much research went into development of the new heater system, and it works exceptionally well. That floor-mounted shifting lever controls four forward speeds, top three synchromesh.



Ford's new 105-E 966cc engine is a newly designed short-stroke powerplant. Though 17.7 per cent smaller in displacement than its predecessor, it delivers 8.3 per cent more power. New suspension, spring rates and low-friction steering gear combine to produce feel of brisk performance, comfort, excellent cornering ability.

SPECIFICATIONS

ENGINE: Pushrod-operated in-line water-cooled four. Bore 3.19 ins. Stroke 1.92 ins. Stroke/bore ratio .6:1. Displacement 966cc. Compression ratio 8.9:1. Advertised bhp 39 @ 5000 rpm.

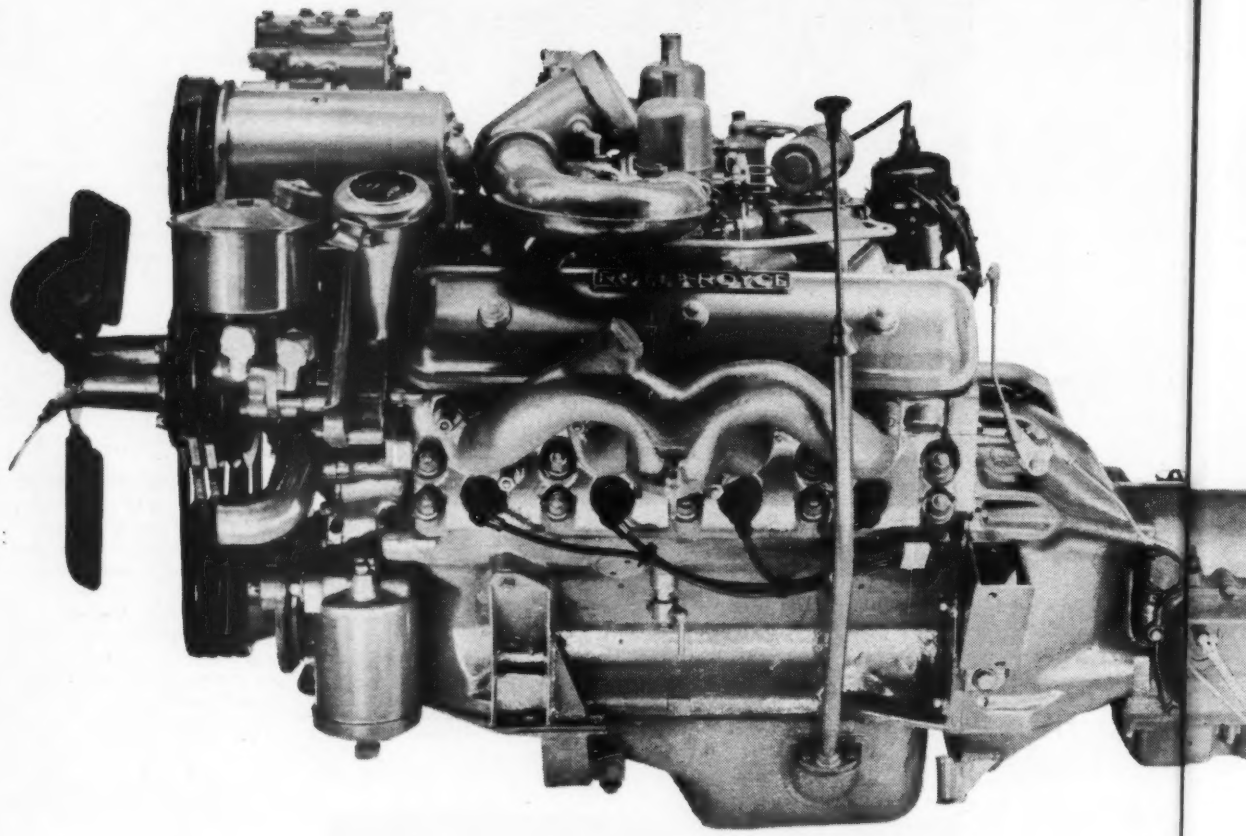
TRANSMISSION: 4-speed, top 3 synchro. Ratios 4.12:1, 2.39:1, 1.41:1, 1.00:1. Final drive ratio 4.13:1.

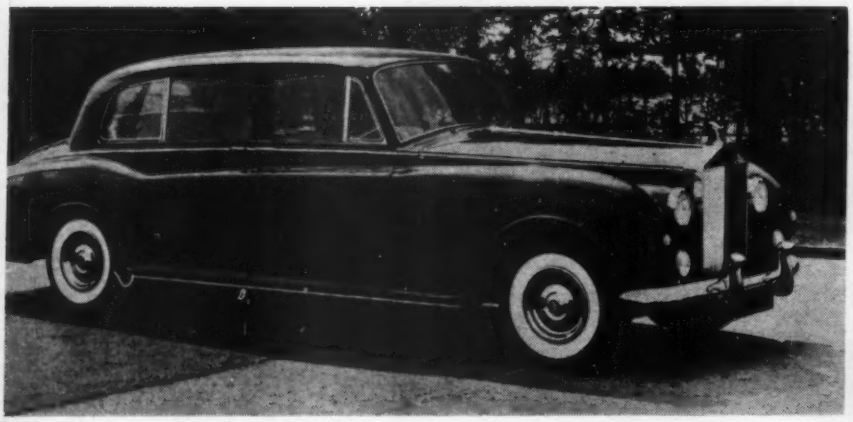
STEERING: Recirculating ball; 32-ft. turning circle, 2.75 turns lock-to-lock.

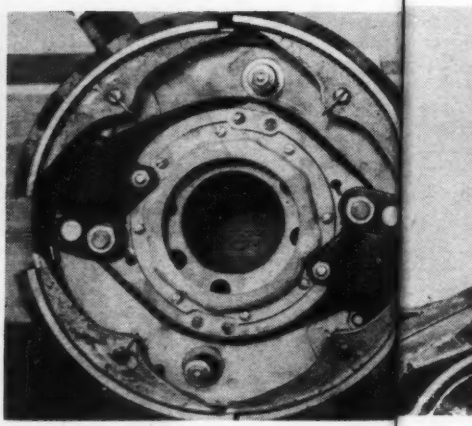
BRAKES: Drum-type Girling hydraulics. Lining area 76.8 sq. ins. Lining area/ton 93 sq. ins. Tires 5.20 x 13.

DIMENSIONS: Wheelbase 90.5 ins., overall length 153.5, overall width 57.3, overall height 56.6. Weight 1645 lbs.

New lines took over three years to evolve, were done for esthetic value and to reduce fuel consumption. Ford engineers proved the old engine wasn't the culprit: the square body shape was costing about 4 mpg in frontal area. With the new design, these miles are now for free—in addition, the car's a lot prettier.





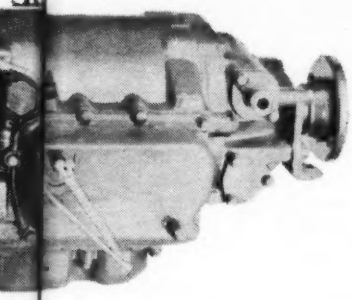


With the auto industry throughout the world emphasizing function and smallness, Rolls-Royce is making the biggest car in its history. It's designed for the man who not only can afford a chauffeur, but who wouldn't have it any other way. It's an automobile where no expense or effort is spared to provide the ultimate in drawing-room-on-wheels motoring.

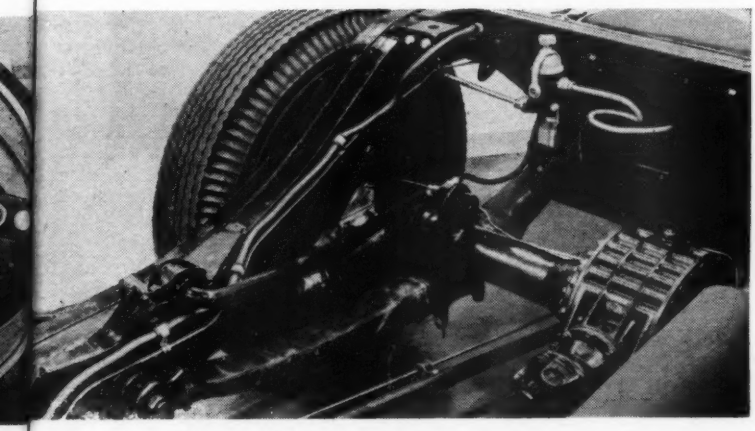
The heavier the car the better brakes it needs, and with that much weight, unsprung imbalance doesn't mean a thing. Brakes are heavy-duty leading-shoe design, with each half-shoe working independently for total contact.

ROLLS for breakfast at $17,500

by Gordon Wilkins



Power of a Rolls-Royce is never disclosed, but a guess would place it close to 200 hp. Note the use of twin SU carbs on V8, and the topside grouping of engine accessories.



Chassis and suspension are conventional, with Rolls following common basic concept—live axle, leaf springs, hypoid differential. Interesting differences are meaty torque arms to absorb thrust smoothly and leather spring covers to hold spring lube. Metal covers would probably squeak. Rear-located fuel pump noises are completely insulated.

AT A TIME when auto manufacturers all over the world are becoming interested in smaller cars, Rolls-Royce have boldly re-asserted the position of their car as the logical choice for leaders in business and politics by producing the largest Rolls-Royce ever made, the Phantom V, with a new big V8 engine in a chassis almost 20 ft. long. Fitted with custom-built limousine bodywork by such specialists as Park Ward and H. J. Mulliner, it is an immense car 5¾ ft. high and more than 6½ ft. wide, which offers sumptuous comfort and space to spare—a car into which one can walk without loss of breath or dignity. It is the chauffeur-driven car for those who can afford the best, know what the best is, and wish to travel in lavish luxury, comfort and silence.

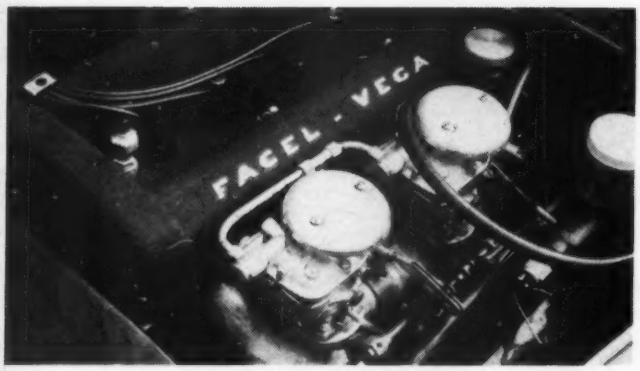
Power unit for the new model is an entirely new 90-degree V8 engine with light alloy block and cylinder heads that have been under development for the past five years. Before World War I there was an early Rolls-Royce prototype with V8 engine, but nothing of it survives. This is the first Rolls-Royce to go into production with a V8 engine.

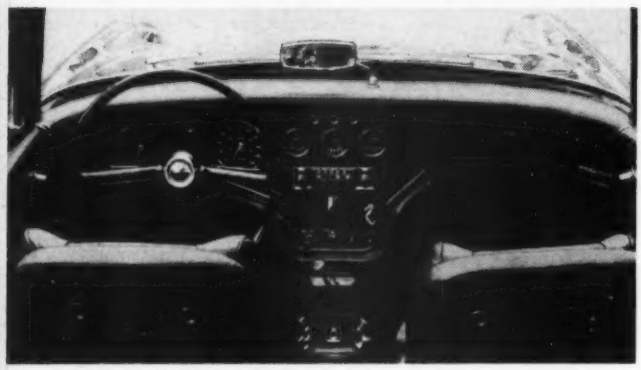
Departing from previous Rolls-Royce practice, the engine has overhead valves (instead of an F-head) and uses hydraulic tappets. Bore and stroke are 4.1 ins. and 3.6 ins., for a displacement of 378 cu. ins. (6230cc). Compression ratio is held at a moderate 8 to 1 to ensure absolutely smooth and quiet running, but it seems probable that the output will be over 200 bhp. Rolls-Royce, naturally, do not announce engine power figures.

In spite of a large increase in power, the engine weighs no more than the 4.9-liter six that it replaces. It is mounted in unit with the Rolls-Royce four-speed automatic transmission, based on the original Hydra-Matic design. Final ratio is 3.89 to 1, which with immense 8.90x15 tires give 22.5 mph at 1000 rpm. Chassis design is entirely conventional and follows previous Rolls-Royce practice.

On demand, two separate refrigerator units can be supplied; one to cool the front compartment, the other fitted under the rear parcel shelf for the rear compartment. Windows have normal winding handles but electric window lifts are an optional extra. It is obviously assumed that the owner of such a car will not concern himself with parking problems; he will have a chauffeur. The overall design reflects this philosophy.

NEW IN THE





WE REMEMBER THE FIRST TIME we climbed behind the wheel of the Facel Vega. Not only was luxury laid out before us, but it actually came down to enclose us. Its engine was big—nearly six liters to be exact—and it had a price tag to match.

To answer a demand for a smaller-displacement, just-as-luxurious car—satisfying a need on the domestic market and filling a gap in the export line—Facel Vega have designed, built and introduced the little Facel, the Facellia.

Overall body lines resemble the Bertone-styled Giulietta in the contour of their sweep, probably more coincidental than intentional. In detail, there is no similarity. Both fore and aft ends are basically flat. At the front, air intakes account for penetration losses anyway, and at the rear the flatness is drag area that provides directional stability at high speed.

The engine looks remarkably like a 1300 Alfa Romeo engine bored out to 1600cc, though there are enough differences to make this assumption invalid, too. A twin cammer with hemispheric combustion chambers, the cams rotate on ball bearings. This is expensive, but it works well at high rpm, which is where the engine does its best work. Gearbox is the famous Pont-A-Mousson four-speed ultra-silent all-synchro; brakes are disc all around.

Interior is just as lush as big brother's, with very unusual contour seats and abundant use of fine leather. Small controls and instruments—and there are many—fall easily to hand and eye in a way that bespeaks goodness of both taste and bank balance. Though described as a 2-3 seater, the third person would have to be quite small. The space behind the seats can take only small pieces of luggage; however, the trunk is large enough for all that two people—even two quite prosperous people—would want to take along.

Interior of Facellia leaves little to be desired in appointment, comfort, ease or good taste. Everything is of best quality. Gearbox is a handmade unit, ultra-smooth and quiet. 1600cc engine peaks 115 hp at 6400 rpm (1.15 hp/cu. in.), even with mild manifolding and downdraft carbs. Speed through the gears is 32, 57, 89, 114 mph.

FACELLIA out of FACEL-VEGA

SPORTSCAR STABLE

DART out of DAIMLER

THE DAIMLER DART (now designated SP.250) is a mixture of old and new ideas. The oversquare V8 engine is modern, uses 70-degree-inclined valves in hemispherical combustion chambers operated by short, light-alloy pushrods. Light alloy (to save weight) is used extensively in the engine. Maximum power is 140 hp at 5800 rpm, from 2548cc (154.2 cu. ins.).

The chassis is not so new—a light box-section structure carrying independent front suspension by wide-based unequal wishbones and coil spring. The live rear axle is carried on semi elliptic leaf springs, with the chassis frame passing under the axle. This provides low center of gravity and low silhouette, but at the cost of reduced ground clearance and limited travel for the rear suspension. Wheelbase is 92 ins., overall length 160.5.

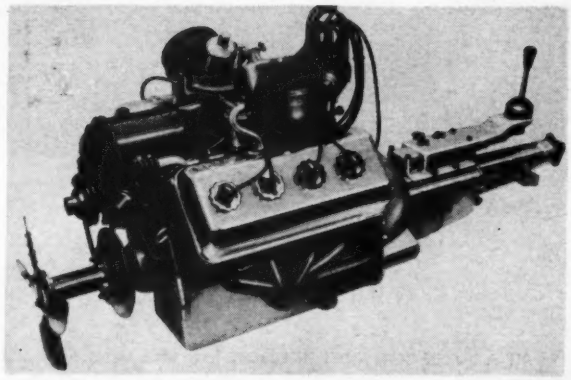
The body is a light, open two-seater in polyester resin, with folding top or detachable hard top and good-sized space between sharp-edged tail fins. Standard equipment is the four-speed gearbox; automatic transmission by Borg Warner or overdrive by Laycock de Normanville are optional extras. Other options are adjustable steering column, leather-covered steering wheel, chromium wheel rings, windshield washers, fog and spot road lights.

A test drive revealed that the engine is responsive—smooth, powerful, flexible. With 6000 rpm as a limit, first gear gives about 45 mph, and second over 70. In third gear we got 100 mph at 5600 rpm—with plenty more on tap. Top speed should reach 120. Drivers on distance runs report remarkably low fuel consumption.

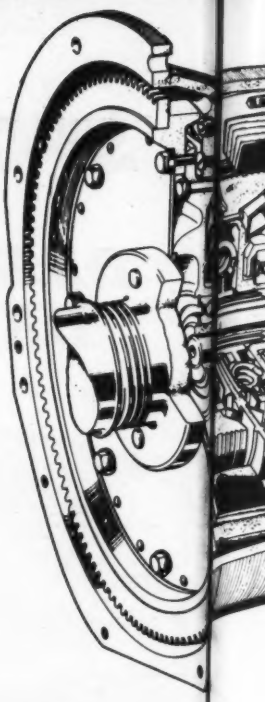
The ride is fairly stiff, with marked oversteer when the car is twitched into a corner sharply. Steering is quick but not unusually light and there was some wheel shake on bumpy sections of road.

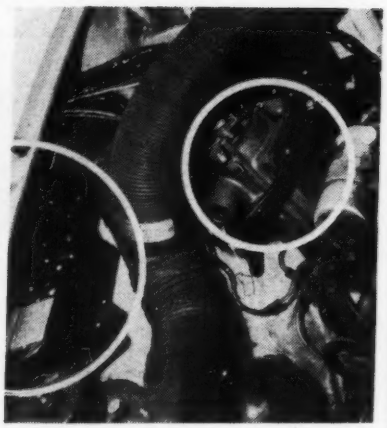
This sportscar will be followed later by a new sedan (below right) and probably a four-seater convertible using the same engine. These will have fully tooled steel bodies instead of fiberglass.

—Gordon Wilkins



ROOTES FIRES TWO SHOTS WITH A small AUTOMATIC





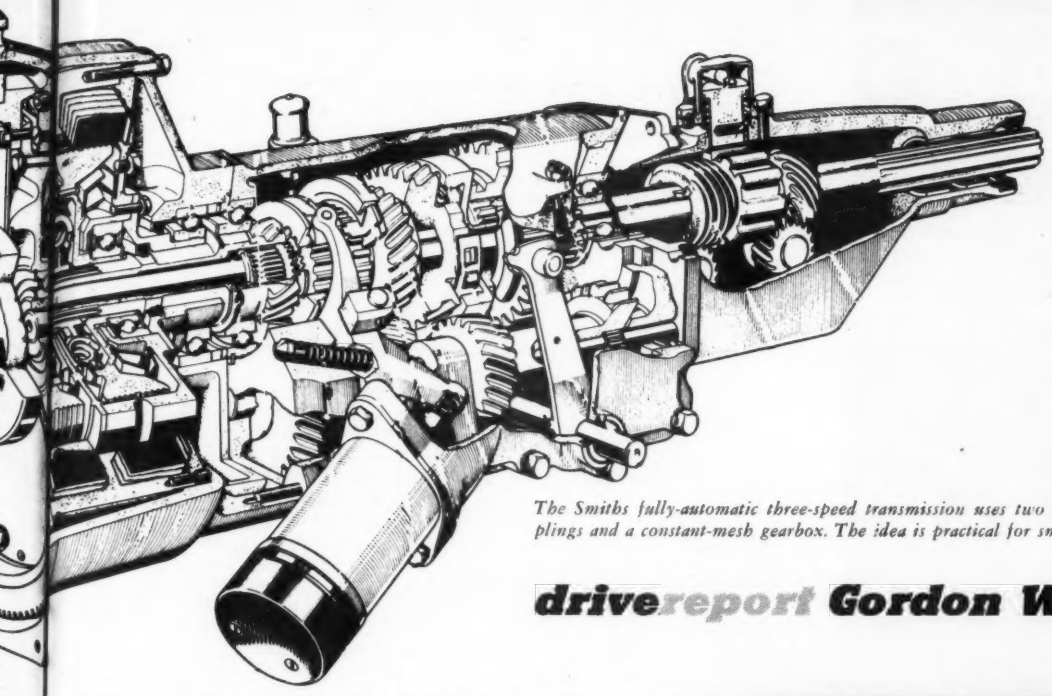
Addition of control boxes under the hood identifies the shiftless models; circled element is the governor unit.

HALF A DOZEN COMPANIES IN EUROPE have been racing to be first out with a practical automatic transmission for light cars. Now, Rootes engineers in collaboration with Smiths are first to offer popular light cars with fully-automatic drive—the Hillman and Singer (first described in Aug. '59 MT). The optional automatic—called Easidrive—will cost $189.

There's no clutch pedal and no gear lever, just a familiar selector lever on the steering column which you set to D for Drive, or 2 if you want to hold second gear for downhill braking or for quick cornering on mountain roads. Take-off is utterly smooth, even on hills, and you can hold the car momentarily on a hill simply by pressing the accelerator. There is no slip, and none of the power losses inherent in fluid torque converters, so fuel consumption is unimpaired.

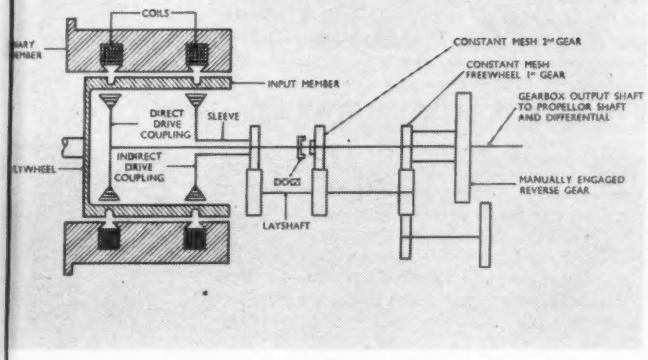
The Smiths system uses normal constant-mesh gears with two magnetic powder clutches of the Eaton type, originally invented by Jacob Rabinow in the U.S. They are filled with iron powder which "freezes" when a magnetic field passes through it, and so transmits the drive. The moment the current is cut off, the clutch is freed. These couplings cannot snatch or judder like an ordinary clutch, and a governor responsive to car speed and accelerator makes the gears shift smoothly, in conjunction with an electric control box—by means of switches and solenoids.

There are three speeds (against four on most small cars), but the device makes good use of its gears, and acceleration is very close to four-speed manual shifting. One thing the automatic system cannot do is make a racing start—revving the engine up high and banging the clutch in to use the inertia stored in the engine will not jerk the car into motion. Standing-start accelerations take about 0.8 sec. longer than those obtained by a ruthless driver with a normal



The Smiths fully-automatic three-speed transmission uses two magnetic particle couplings and a constant-mesh gearbox. The idea is practical for small, low-powered cars.

drivereport Gordon Wilkins



One of the major drawbacks of automatics for small cars—about 15% power loss — has been eliminated by electrically controlled on-off engagement without torque multiplication, through a fluid coupling.

Sister Rootes-Group cars Hillman and Singer share the automatic option, in both sedans and wagons. Acceleration is slightly reduced, but fuel consumption will not be increased.

clutch and gearbox, but engine and transmission will last longer because of it.

With throttle slightly more than half depressed, upward changes from first to second are made at 22 mph, from second to top at 46. Downward changes from third to second are at 35, from second to first at 15 mph. The hysteresis range (the lag in reaction when the force causing the action is changed) is narrowed at smaller throttle openings and is fixed below 20 mph. In this range the system is not throttle-sensitive.

If Low (2) is selected while the car is moving fast with a closed throttle, a "blip" solenoid momentarily opens the throttle to make a shock-free engagement. An engine protection switch completely prevents second gear from engaging at speeds above 50 mph.

Another of the many detail refinements is a resistance brought into the generator field circuit for the choke control. This prevents the car's creeping forward when the engine is idling fast during warm-up.

An emergency plug isolates the automatic control system in the event of circuit failure. The motorist is not helpless with a non-functioning gearbox. First and top gears are selected manually by selecting Low or Drive on the selector lever.

A governor, sensitive to road speed and accelerator position, is placed in tandem with the speedometer drive and controls the gear changes. Built-in hysteresis delays downward changes to prevent the gearbox hunting between one gear and another when traveling at constant speed.

The Rootes group has found the combination to attract the American market—already spoiled by automatics—and the new British market, which is perfectly willing to be spoiled. English sporting gentlemen are getting harder to find.

There's something about the lines of a fastback coupe that tingles the emotions of the sports-minded. It just plain looks like it goes. The Sport Prinz, with its two-passenger capacity—plus ample luggage room inside the car—is indeed a bona fide Gran Turismo.

Rear location of engine naturally places luggage space in the front, somewhat restricts available space. There's more inside, though. Vertical-twin engine has very unusual valve arrangement for automobile. Single overhead cam and rockers allow hemispheric chambers.

THE LITTLE NSU SPORT-PRINZ is a new world when you come from bigger cars, and in Germany we call cars bigger than 1500's Big Cars. It is like a little ardent Arabian horse: sensitive in steering (very direct), cornering quickly (short wheelbase) with excellent road holding. It tends to oversteer; but you soon get familiar with its habits.

This car was born to go along tortuous roads, and it feels like a little racing car. Its third gear is the correct ratio, and leaving the Sport-Prinz in third eliminates a lot of shifting. Its range is from 20 to about 62 mph. At this speed the engine is noisy, but the factory engineers told me this engine can be driven hard. It is a workhorse, even though it has the temperament of a racing horse.

The rear-mounted engine is a so-called vertical twin, an aircooled two-cylinder four-stroker of 2.95 ins. bore and 2.40 ins. stroke, giving a capacity of 35.4 cu. ins. (583cc). It has a single overhead camshaft, valves operated by pushrods (called Ultramaxsystem). The Sport-Prinz engine has a power output of 30 hp (DIN) at 5500 rpm with 7.6 to 1 compression ratio.

Four-speed gearbox with floor shifting lever produces speeds of 19, 38, 62, and 81 mph in respective gears. One component needing improvement is the clutch, which is of the in-or-out variety: too quick, and the car will jump like a horse. But familiarity will take care of this.

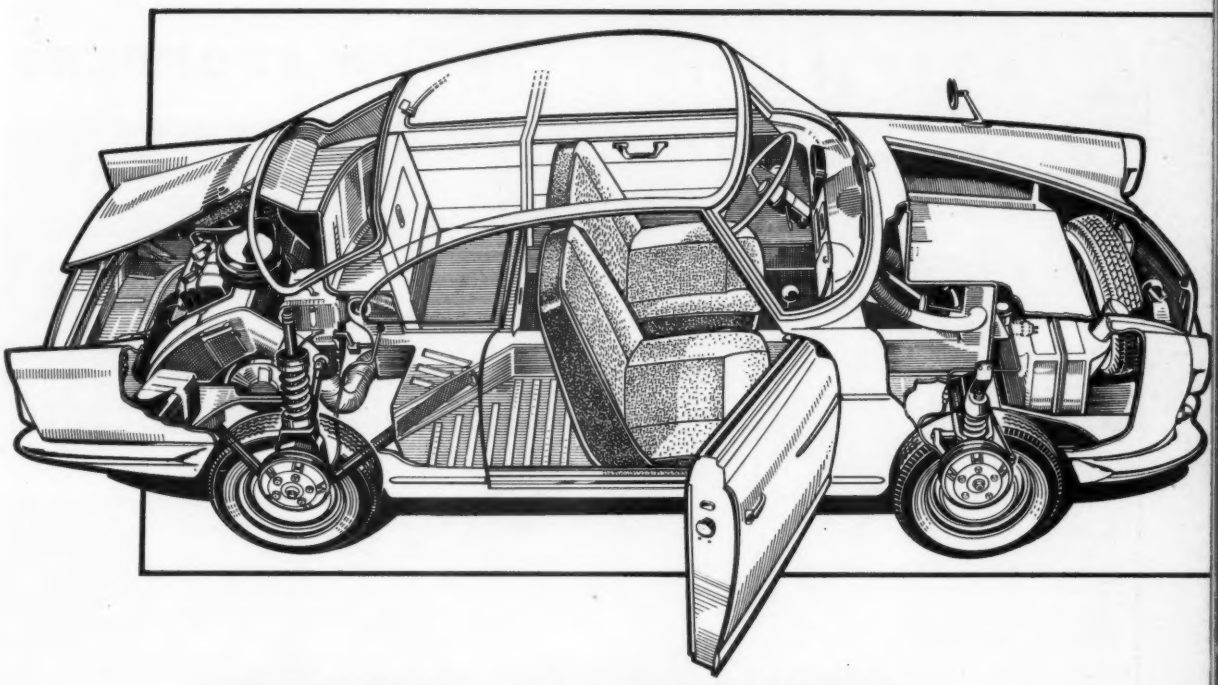
Roadholding and cornering are excellent. Both the Prinz and the Sport-Prinz have unequal wishbones at the front with swing axles and wishbones at the rear. Steering is by rack and pinion with divided track rods. Brakes are hydraulics; the light-metal drums have gray-iron rings inside. The brake action is soft; results are very good.

Getting into this little coupe is like getting into a Porsche. The seats give your back good support vertically and laterally. This is very important when driving fast over long distances, especially in such a small car. Brake and clutch can be reached quickly without looking for them. Driver's position to the steering wheel and to the gear-shifting lever is very good. Visibility is clear in all directions. Behind the front seats there is room for small children or for parcels; main luggage compartment is in front.

Turning the ignition key starts the typical sound of a vertical twin engine, which will be familiar to a motorcycle fan. This engine provides all the power needed for such a coupe.

After becoming familiar with the clutch, three of us started for side roads in the area of Neckarsulm, the home of the Sport-Prinz. There we found many tortuous roads. The steering wheel needed only little corrective movement, but it required counter-steering at the precise moment to prevent rear-end breakaway. However, it is definitely not dangerous nor even uncomfortable.

The car is very stable in corners, with little lean or sway. Once acquainted with this tiny automobile, the driver wishes that roads with left- and right-hand turns following one another in quick succession would never end. The car goes through this endless cornering very fast and very exact. It is really fun to drive.



PRINZ of SPORTS

drivereport Gunther Molter

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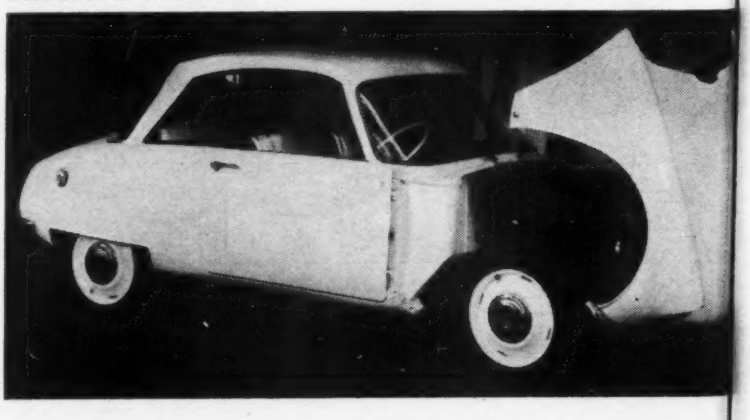

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As usual the Paris and Turin Auto Shows unveiled a number of striking new styles (photos at left, top to bottom). Pinin Farina displayed his annual GM experimental car —a Cadillac with transparent plastic roof. Sliding shades of lightweight aluminum were remotely controlled by electric motors; they are adjustable to provide shade for passengers. A two-seater sports model from DB featured wheel rims bolted to radially-finned brake drums; model displayed had metal body, though plastic is planned for production. Farina also exhibited a 410 SuperAmerica special body with clean, classic lines, silver gray finish, leather interior—the ultimate in custom-building. An unusual two-door plastic body for the Citroen 2-CV, styled by Peter Kirnan-Taylor, offered an attractive disguise for the "ugly duckling." The cost would be $280 above the standard model.

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Use Tests OF NEW PRODUCTS

Axle windup gauge with stylus to trace movement on calibrated chart was used on test car to measure Traction Master's effect on rear axle during periods of maximum torque acceleration. Inches of squat and degrees of windup were vastly reduced.

TESTING AN AUTOMOBILE with faulty suspension proves that anyone who knowingly operates his car with tired components is a menace. The modern automobile is the product of so many production and cost compromises that many makes of cars lack stability even when brand new, but because every part is functioning at peak efficiency a good driver can handle it at turnpike speeds and stop it hard with no more than normal dangers. It's when the parts begin to wear—after thousands of flexings the springs become soft, shock absorbers bypass fluid without damping, and locating arms develop looseness at the bushings—that the situation becomes dangerous. And by this, we mean that the car cannot be controlled under emergency conditions when control is most needed.

Let's start with a few basics. Front suspension systems have been pretty well standardized, being independent with A-frames. The lower frame is longer than the upper, and there is a coil spring between them with a shock absorber mounted in the center of the spring. Even when new, the spring rates are low and the shock absorbers are soft to provide a boulevard ride even over washboard surfaces. After a few thousand bumps, the shocks that just about did the job when new become so soft they are useless. When this happens, the spring is forced to bound and rebound over longer cycles, and the soft spring becomes even softer.

When the automobile leans under cornering, the front wheels assume weird contortions. The top of the outside (loaded) wheel, because of suspension geometry, moves away from the car. At the same time, the top of the inside (unloaded) wheel is forced inward. The net effect is to provide less "bite" between tire and road surface, making the car insensitive to steering wheel movement.

This is on a car with good suspension components; when these are tired, the car rolls and leans to excess, which really contorts front-wheel angles and makes steering for control almost impossible.

The rear wheels are affected by the action of the front wheels. When the front end leans (one side drops, the other rises) rear wheels are inversely affected. Try it yourself—push down on the right front fender, and the left rear fender will lift!

The rear suspension is usually Hotchkiss drive (solid axle, leaf springs with exposed driveshaft), which is an orphan as far as advanced engineering application is concerned. The best that can be said for it is that it keeps the price of the car reasonable, and it works. It is the same system that was used 30 years ago. Without improvement it is incapable of efficiently accepting acceleration torque from a 400-lbs.-ft. engine. Here's why:

Engine power is transmitted through the driveshaft as rotary torque. (You can determine this by stepping on the brake, putting the car in gear and applying power. One side will lift.) At the differential, the rotary torque is changed in direction by 90 degrees, and the rotation now becomes very important. The rotation that pushes the car forward must first have something to brace against. Unfortunately with Hotchkiss drive, the springs assume this function. Before the car can move forward the springs have to twist in proportion to the torque that is applied before they "wind up tight" and power can be fed to the wheels.

Surprisingly, most imported cars with Hotchkiss drive have an additional suspension member whose only job is to take engine torque and keep the rear axle from moving and from skewing. These arms are called either radius rods or torque arms. They are solid, meaty rods connecting the axle and the frame. By bypassing the springs, they prevent the axle from twisting, or winding up, under torque. They transmit the thrust directly to the frame. Unfortunately, on Detroit products, torque arms are an extra not even offered by the manufacturer.

MOTOR TREND fitted its KaiSoto test car with instrumentation to measure precisely how much a rear axle winds up and a rear end squats under both normal acceleration and dragstrip starts. The KaiSoto was an ideal car for this because it had Hotchkiss drive—identical to most cars, including the '60s (except for a few models with coil springs and torque tubes at the rear). Also, it lent itself to instrument installation because of a flat floor and uncluttered underside.

A rod was welded to the forward side of the rear axle housing at a point midway between the differential and the left rear brake backing plate. This rod was parallel to the ground, and from axle-shaft center to the end of the rod was 14.25 ins. A coupling was welded to the forward end.

A hole was drilled in the floor directly above this coupling, and a second rod run through this hole at right angle to the first. The two rods were joined at the coupling. Thus, as the axle twisted, the vertical rod moved up and down, and the distance it moved could be translated into degrees of axle windup and rear-end squat.

The first half of the test concerned reaction with shock absorbers completely removed (equivalent to a bad set) and only the springs to take torque. This was a condition of minimum control that provided maximum windup and squat.

Normal acceleration without wheelspin produced axle windup-squat equivalent of 10 degrees. Maximum acceleration—with tire adhesion broken and the KaiSoto's locked rear leaving two streaks of black rubber down the dragstrip—produced eight degrees of twist and squat equivalent. Thus, as expected, the more torque the springs were made to resist, the more the axle wound up.

The KaiSoto was then driven carefully to Performance Associates, where Gold Seal Traction Master torque arms were installed. Then, to Muffler Ville in Baldwin Park (close to the San Gabriel test site) for installation of four Traction Master High Speed shock absorbers. Then, back to San Gabriel for retest with new stabilizing equipment installed.

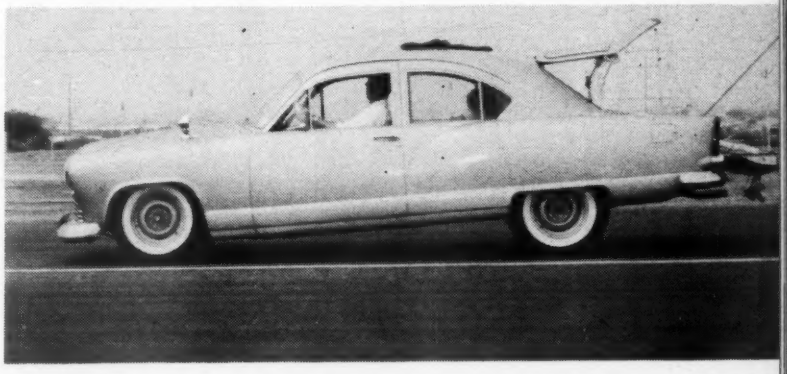
Acceleration without wheelspin caused a windup-squat condition of seven degrees —a 30 per cent improvement. Fierce acceleration with wheelspin produced a 6.5-degree windup angle—an improvement of 23 per cent.

This proved what we could feel very easily but unfortunately could not measure. First, parts that fit snugly and have no lash are subjected to far lower unit pressures and inertia loadings. They do not wear out as quickly, and in some cases do not wear out at all. Secondly, with the right part doing the right job well, road feel is completely different and very much better.

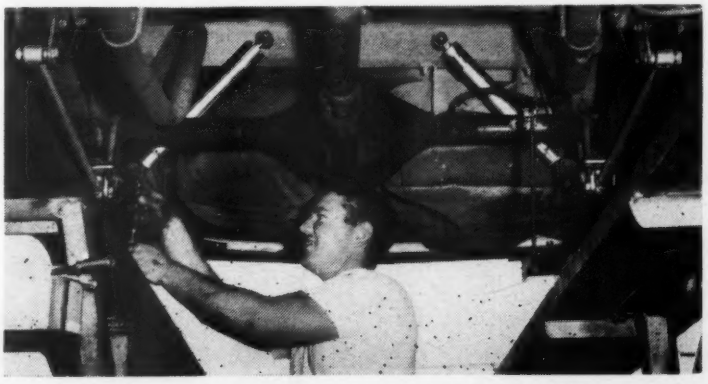
On the road, without shock absorbers and torque arms, the KaiSoto can best be described as a handful. Throttle response felt vague, because the springs had to "load" before acceleration could take place. While cornering, roll and lean were so bad that front-end geometry worked against the action of the wheel, creating hard steering and not too much response. Using the throttle to help turn the car (accepted practice) wound up the unequally loaded rear springs to different degrees of tightness, causing rear-end steer. On the straights, directional stability was reduced. Road irregularities caused unequal and constantly changing spring loading, which in turn caused geometry changes that created individual wheel steering from bump to bump. Frequent wheel corrections were needed. And most annoying, many components started to vibrate loose.

On the basis of these points that we could both feel and evaluate by test, we award the Gold Seal Traction Master "package" (torque arms and shock absorbers), retailing at $97.85 to $109.85, the MOTOR TREND Seal of Approval.

With Traction Masters and new shocks installed, test car gets a good "bite" and remains level during acceleration due to reduction of rear axle windup.



Without the restraint of shocks of any kind, test car lurches and dives under normal braking. Mechanic puts final touches to shock and torque arm installation.



CLASSIC of the MONTH

'38 LINCOLN
SEVEN-PASSENGER SEDAN

Bob Gottlieb drives and reports on "today's most popular classic car"

JUDGING THE APPEARANCE of the '38 Lincoln is a matter of personal preference, but it must be admitted that the car looks like a classic from any angle.

The aluminum-bodied seven-passenger sedan shown here is a shining example of one of the last models of a long series of famed cars. For a fuller appreciation of this cherished classic imagine yourself taking a trial spin with us and recording your impressions . . .

First of all, though the doors are extremely large and heavy, you find they open with amazing ease. You slide behind the steering wheel and are immediately impressed with the comfortable front seat, which seems to support your back in just the right places. The position of the steering wheel is high and slightly awkward. You have to extend your arms to grasp the wheel; it really isn't too comfortable.

The instrument panel is bare, so plain that you wonder why other manufacturers did not imitate such simple functional design. Instruments are at a minimum: speedometer, fuel gauge, ammeter, oil pressure and water temperature gauges. The square instrument faces are matched by an oversized clock. To the far right is an ample size glove compartment.

Operating controls are standard and also kept to a minimum. Starter button is to your left, ignition lock is mounted on the steering column. In the center of the dash are the windshield wiper control, hand choke and hand throttle.

The windshield area is adequate and you look out over one of the shortest hoods to be found on any true classic. The left front fender is easily seen; the right front requires a slight twisting movement of your body. Rear vision is only fair.

Both front seats are adjustable by means of huge levers and can be adjusted individually.

After inserting the ignition key, you must twist it two complete turns to work a lever which completes the primary coil circuit. Pull out the hand choke, press the starter button, pump the accelerator two or three times and the 12-cyl. engine springs to life. It seems as if the starter motor is turning the large displacement engine too slowly but you are somewhat surprised at the speed with which the engine starts. Engine noise level is fairly high; somehow you don't expect to hear the engine in the driver's compartment but you do.

The gearshift slots are convenient, easily reached, and shifting is accomplished with no clashing of gears. Acceleration is not good by comparison with modern cars or other classics, yet it is certainly ample. The Lincoln was never built for high-speed performance.

When it comes to stopping, you find that the brakes work excellently. They are power-assisted and require slightly more pressure than present-day power brakes but the system takes hold easily, smoothly and effectively. You are forced to marvel at the workings of one of the last production-built cars to use mechanical instead of hydraulic brakes.

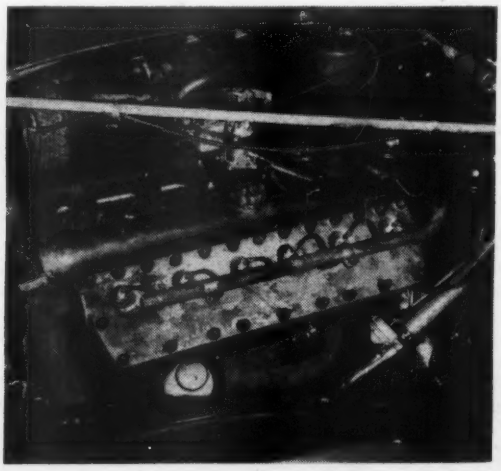
Steering is unsatisfactory from the standpoint of an enthusiast. The wheel requires a good deal of pressure to turn. On sharp curves, regardless of speed, you have the feeling that you are manhandling it. Turning the wheel with the car at a dead stop is a momentous task. (What manner of female drove these cars during the golden era?)

The ride is choppy on minor ruts and bumps but the suspension smooths out the really large ones. There is a definite understeer characteristic but body roll is at a minimum.

Many impressions strike you on an extended drive. Engine noise level is somewhat bothersome but there is no vibration. . . . You get a pungy odor of burnt oil, characteristic of Lincolns as well as Fords of this era. . . . You have the feeling you're driving a car that is almost too large, but the Lincoln greyhound atop the radiator shell creates a feeling of prestige—you know you're driving a classic.

This particular car was purchased by a Lincoln enthusiast (he owns 11) within the past six months for $150. He detailed the car and installed a new battery, muffler and fuel pump. He then resold it for $300.

The car reflects the fine craftsmanship, quality materials and durability that won Lincoln its fame. It is an encouraging example for those enthusiasts who claim they cannot find a good classic under $1000.



by James Joseph

IN A SMALL SOUTHERN TOWN, a justice of the peace's salary has tripled . . . since, out of pocket, he "treated" the village's only patrolman to a radar speed meter. "Best investment I ever made," the "justice" grinned. Recently he moved his family into a spanking new $30,000 house . . . bought by radar.

In Manchester, Conn. businessmen charged that the local police chief, enforcing speed laws solely by radar, had so labeled the town a "speed trap" that motorists were skirting it . . . and taking their business with them.

"Pushbutton justice . . . is all but upon us," warned an Erie County, N.Y. jurist, in reversing a lower court's conviction of a speeder apprehended by radar.

"Nonsense," retorted New Mexico's Capt. Penn Winston, of the state police, "we're in business to save lives, and frankly, we don't care how we do it."

In Westfield, N.J., 20-year-old Kenneth Brassler, an engineering student, rigged his 1955 Ford with a home-made "radar detector" . . . which failed to spot the radar that nailed him for doing 37 in a 25-mph zone. "You can't beat that beam," Brassler conceded dolefully.

Few motorists, in fact, even try, found MOTOR TREND reporters in a nationwide survey.

"How can you argue with a black box?" shrugs a driver tagged for exceeding Michigan's speed limit.

The relative handful who've brazenly contested radar's findings have often found themselves confronted in court by electronic experts (often furnished by the speed meter's manufacturer), who've sworn—sometimes falsely—that radar is infallible. Radar is no such thing. Neither is it the solenoid-brained automaton—the "unerring eye"—as claimed.

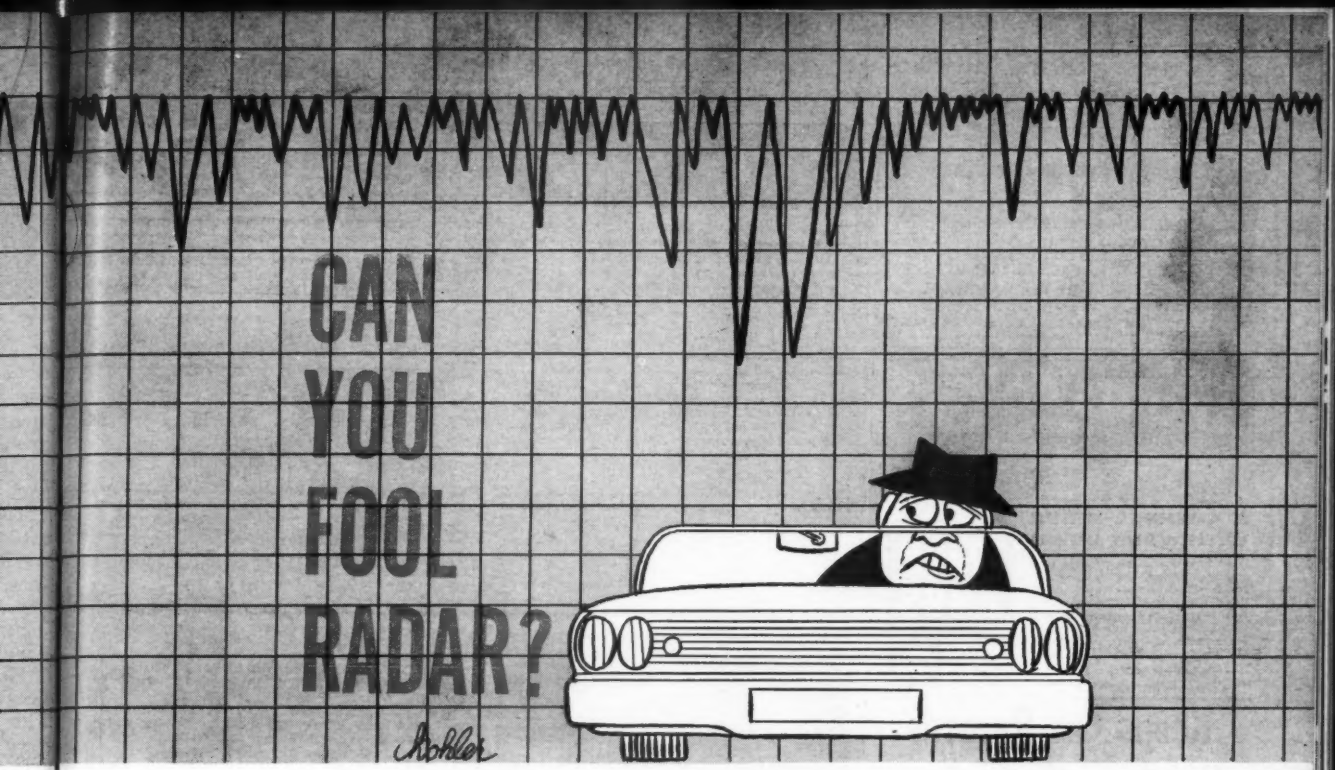
Recently, for example, one surveyor accompanied a patrolman as he "beamed" a highway. During the hour in which the officer—and a confederate stationed down the road to flag violators—tagged nearly 15 "speeders," the radar was in every case improperly set up! That's right . . . its beam was set at right angles to traffic when, in fact, the device operates accurately only when facing toward—or away from—traffic. Some of the ticketed "offenders" actually took the rap for cars going in the opposite direction—and speeding in an altogether different lane.

Did the "violators" protest? Did they demand their hour in court? If they hewed to statistics—which show that invariably the radar-ticketed plead guilty—they took their medicine and paid their fines. What manner of "magic" is radar that it should awe motorists?

Roadside radar involves three lightweight units: a battery-powered transmitter-receiver (its beam a 2455-megacycle microwave), an indicator (nothing more than a kind of electronic speedometer), and a graphic recorder. The recorder's inked stylus, electrically actuated, converts the indicator's reading to a permanent (and oftentimes convicting) record. With radar's antenna pointed toward oncoming traffic, a narrow band of high-frequency waves (their pattern shaped like a flashlight's beam) bathes the road. Range varies between 125 and 200 ft. when the transmitter is set on the road's shoulder (either in plain sight or concealed in a car).

If no car passes—and no obstruction reflects the weak signal—nothing registers either on the indicator (which is calibrated 0 to 100 mph) or on the similarly scaled graph. But when—beam on—you enter the radar's field, radio waves strike your car—and bounce back to the receiver. How fast they bounce back is a measure of your speed. Or, to put it another way: when the transmitter's 2455-megacycle waves hit your car, they return to the receiver at a slightly different frequency. How large the difference depends on how fast you're going.

For example, suppose you're traveling a modest 10 mph. Then the difference frequency is 73.1 cycles. If you're going 10 times as fast, or 100 mph, the convicting frequency difference is 731 cycles (an "audible" frequency, though few human ears are sensitive enough to pick it up as sound). Since cycles are



electrical waves, they can be amplified—to actuate an indicator needle . . . or a graph's stylus. Thus, as you cruise at 60 mph through a beam, the monitoring officer keeps his eye on the indicator's needle. As you enter the zone, the needle begins to climb, reaches 60 mph and, as you exit the zone, falls back to zero. Simultaneously, the stylus has inked a line across the graph paper . . . indicating 60 mph.

When operating properly, radar is accurate within two mph. Nor is it difficult to test the unit's accuracy. You need only strike a little aluminum tuning fork (which, when struck, vibrates at a given frequency) . . . and hold the fork in front of the radar's receiver. A fork vibrating at 731 cycles, for example, acts precisely like a car doing 100 mph. And the radar's indicators should record this speed. If they don't, the unit's haywire.

Speed meters (the transmitter-receiver unit) are mounted atop patrol cars, stashed behind the rear window, concealed in the trunk (the beam bombarding the road through a hunk of plexiglass camouflaged the same color as the car). Down highway awaits the "catch" man. When the radar officer tabs a car as exceeding the limit, he notes its make, color and plates . . . and simply radios his catch man, "Blue Chevy, license MKR 222, clocked at 80 mph."

The catch man flags you down . . . or gives chase. You're hauled into court (if you press your case), and find yourself facing the radar officer (who swears he eye-witnessed the needle's swoosh to 80 mph on the indicator gauge). Further, he brings along that slip of graph paper . . . its red line corroborating his testimony. Few motorists argue with what appears, at first glance, to be convicting facts. But many have attempted to outwit radar.

In New York, a driver stashed his hubcaps with tin foil—but failed to beat the beam (he'd misread those war stories which tell how foil fooled radar. *That* foil was dispersed in the clouds, not compacted in a hubcap). Some have dragged chains, rigged their cars with so-called "anti-beam devices," or streaked through, somehow hoping to outrace the beam.

Nothing legal fools the beam. Roadside radar, of course, can be jammed—by a transmitter operated from your car (a Federal offense, even if you're a licensed ham, because radar frequency is reserved for speed meter operators). A tuning fork might do the trick . . . particularly if it resonated at, say, 731 cycles. If the speed meter responded, clocking you at 100 mph when in fact you were doing only 60, you might convince a judge that your bus simply wouldn't do 100—and the radar must be whacky. But in tricking radar, you'd more than likely end up in a Federal instead of a city or state court. It's cheaper to pay the fine . . . and leave transmitter and tuning fork at home.

Yet radar can—and sometimes does—give erroneous readings. Its delicate innards are susceptible to a whole list of chronic aches and pains. Improperly calibrated, it can miss the mark . . . by miles. Some radar circuits are so sensitive that the jangle of a key ring sends them into resonance, their needle swooshing to 70 mph . . . when not a car's in sight!

Reported a traffic analyst after a survey of radar stake-out site, ". . . One meter I saw kept jumping to 30 mph for no apparent reason. It appears that some unknown influence in the atmosphere affects radar operation on rare occasions."

The occasions, as any radar old-hand will confirm, are far less rare than the traffic man suspects. (I, myself, was for four years both an Air Force radar technician and instructor, and more recently have observed radar in action—and inaction—from Alaska's Dew Line to the south Atlantic.)

Significantly, though the Air Force's radars are far more sophisticated than the $1000 "black boxes" sited along our highways, and though they are manned by experts—not semi-skilled patrolmen—they are chronically afflicted with electronitis. Or, as radarmen say, "The danged things are on the blink more than they're in the pink." What's more, radar's beam

continued on page 74

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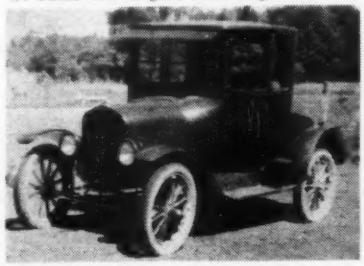

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continued on page 70

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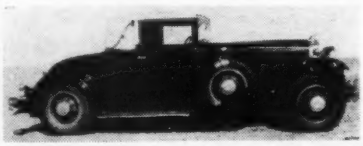

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'37 CORD 812 custom sed. Supercharged Lycoming V8 engine. 132-in. wheelbase; orig. interior near mint. Beautiful chrome & maroon lacquer; exc. radio & tires. Douglas D. Boyvey, 214 W. Wilson, Costa Mesa, Calif. Phone Midway 6-2967.
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JAGUAR XK-120-M ENGINE. Removed for Buick V8 installation. $250. John E. Bretz, 1051 Priestley Ave., Erie 3, Pa.
'31 CHEVROLET club cpe. Near mint cond.; drive anywhere. Highest bid takes it. J. D. Jordan, 1005 Usher St., Fort Worth 16, Tex. Phone CI 1-1588.

continued on page 72

Compacts in Competition

America's first compact car race proved that they can take it. Winner of the six-hour enduro at the Continental Divide Raceway near Denver late in November was a Rambler. Mechanical failures from the showroom-stock cars were few. Lost wheels, anticipated on Falcons and Corvairs, failed to happen. Of 23 entries, only three did not finish: a Volvo, Dauphine and Corvair—rollover victims. After the Rambler, which averaged 55.5 mph for 119 laps on the 2.7-mile road course, came a VW, a pair of Falcons, a Volvo and two Corvairs. Lack of tire wear placed the VW in hotter company than expected. While most of the front runners had four or more pit stops for tires, the VW stopped only once—and not for tires.

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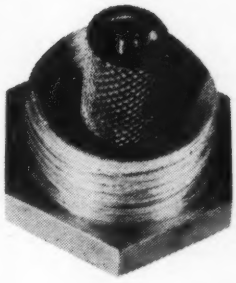
Guard your engine against sure, early wear with this simple, effective Magna-Power drain plug. It soaks up crankcase oil acids as they form . . . absolutely safe and reliable . . . incomparable with high detergent oils, keeps them fresh and active . . . keeps your engine young and powerful for added tens of thousands of miles.



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ENGINE—Magna-Power
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All three **$4.95**

LABORATORY and road tests have finally proven that the major cause of engine wear in today's powerful automobiles is corrosive acids formed during combustion. Why?

Because, the regular—and high test—gasoline you are using in your car contains sulfur. This sulfur, along with other impurities, is burning away your muffler and tailpipe, eating away the chrome on your rear bumper and, EVEN MORE IMPORTANT, wearing away at pistons, cylinders, and other parts of your engine.

How do these impurities—they're actually acids—do their damage? Every 20 gallons of gasoline contains almost a half-cup of destructive sulfur. During the combustion process this sulfur joins with water in the oil system to form metal-eating sulfuric acid. These acids get to work on metallic parts and actually cause most of the wear formerly blamed on friction. The damage is extended as accompanying sludge and carbon deposits result in a wasteful loss of power.

MAGNA-POWER STOPS ACID WEAR

With test results to show that an alkaline agent would neutralize the acids and inhibit sludge and carbon formation, the Johns Manufacturing Co. has prepared a special magnesium alloy drain plug called Magna-Power.

WHY MAGNA-POWER CANNOT BE PUT ON AT THE FACTORY

A new car, or one that has been rebuilt, should go through a break-in period. During the auto's first 1,000 miles rings are seated and the new engine, through a small amount of necessary wear, "loosens up" for maximum efficiency. The time to install Magna-Power in a new car is at the end of the break-in period when you change oil. You can rely on Magna-Power's special alloy to do the job for you; it's the only product of its kind that has been road tested and fleet proven.

Tests conducted by the Canadian National Research Council (Canada's Bureau of Standards) and the Southern Analytical Laboratory in Jacksonville, Fla., have found that this magnesium alloy (1) effectively neutralizes corrosive engine acids, (2) greatly inhibits the formation of sludges, gums and resins and (3) destroys catalysts that cause oil breakdown products which foul spark plugs and cause preignition and internal shorting. Further experiments showed that by attaching a powerful Alnico magnet to the plug many iron and steel filings in the drain pan could be removed.

HERE ARE THE BENEFITS

With reduced acid wear and sludge formation, you get increased power for quicker starting and faster pick-ups. Elimination of many harmful spark plug deposits mean smoother driving, longer spark plug life. Less sludge also means (according to the Canadian Research Council) that oil can be used well over 4,000 miles and filter life is often doubled.

Road tests also show that wear on pistons, rings, valves and other parts can be reduced BY AS MUCH AS 80%. This means a car may be driven well over 100,000 miles without an overhaul. Meanwhile the powerful magnet draws iron and steel filings out of the oil system.

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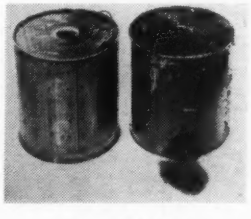

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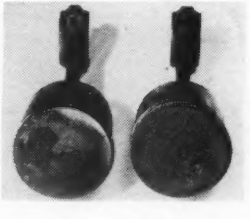
Oil spot near clean filter from car with Magna-Power (left) is so clean it cannot be seen in picture. Filter and oil sample (right) run same mileage without Magna-Power show heavy deposits. Save your oil and engine with Magna-Power.



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Heavy "carbon" deposits are baked on piston crown (right). "Carbon" on piston (left) shows remarkable difference where resins are inhibited by Magna-Power. Get less "carbon build-up" with Magna-Power, more power, better economy.

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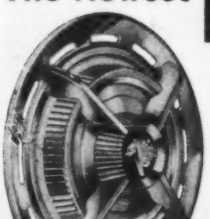

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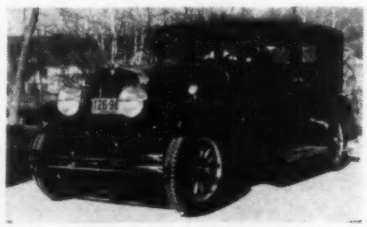


actual cost, $1188—all labor for free. Godwin G. Johnson, 23 Fallon St., Staunton, Va.

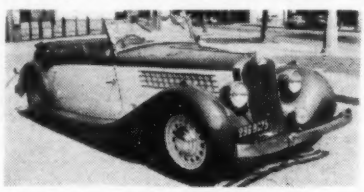
'23 MODEL T cpe. New rubber; exc. cond. thruout. Looks new, runs good. Stored inside. Send highest offer. Earl V. Frazor, P.O. Box 31, Meeker, Okla.

AUTOMOBILE CATALOGS, advertisements, photos, books, magazines—'30-'55. Classics, fine & rare motor cars. Entire extensive hobby collection reasonable. Write & list what you need. John C. VanCranebrock, 2653 Asbury Ave., Evanston, Ill. Phone GR 5-2459.

CORD 810 Sportsman. Orig., with Lycoming engine, front-wheel drive, rt.-hand drive, all instruments, radio. Partially restored; new top. $750, delivered to L.A. or N.Y. W. F. McIlvaine, 508 James Reckitt Ave., Hull, Yorkshire, England.

'47 CADILLAC 75 Fleetwood limousine. Mint, 29,000 mi.; 2nd owner. New ww's, battery. Seldom driven. $950 or best offer. G. C. Blunk, 605 Williams Blvd., Springfield, Ill. Phone KIngswood 4-4503.

DELAGE spt. cpe. Outstanding cond. both mechanically & body-wise. Presently registered in



France; will arrive in U.S. in Jan. $2600 firm. I. Classic, Box 13, Randolph, Mass.

'41 CADILLAC Fleetwood. Almost-new '48 engine; '47 grille, hydraulic windows, E-Z Eye glass thruout. Mechanically in assembly-line cond. $1500. E. C. Pike, 2234 Grant St., Berkeley 3, Calif. Phone THornwall 1-6830.

'36 PACKARD touring sed. Restored—completely rebuilt engine, clutch, universals; new radiator, tires & grille. Some minor work still to be done. $750 or best offer. E. M. Tanis, Manhasset Trail, Medford Lakes, N.J.

'24 PACKARD 4-dr. sed. Immac. orig. cond. Good rubber, good running cond.; can be driven anywhere. Make offer. Harold Van Stelle, Rt. 3, Highway 141, Sheboygan, Wis. Phone GLencourt 2-0667.

'52 ROLLS-ROYCE Silver Dawn sed. $4000. P.O. Box 182, Alcoa, Tenn.

'21 STANLEY STEAMER rare Model 735-E rdstr. Exc. restored cond.—green body, light top,

red leather uph. $6000. 3 large color pix & info $1.50. J. Clewley, 1509 Massachusetts, Lansing, Mich.

MODEL FIRE TRUCK. 2½ hp, equipped with forward & reverse, headlights, turning signals, flashing lights, siren, bell, water tank & reels. Ideal for parade use. $400. R. B. Hawkes, 24 Wenner Rd., Williamsville 21, N.Y. Phone SP 8419.

'37 CHRYSLER Airflow 4-dr. sed. Shiny orig. black paint. Mech. perf. & ready to run anywhere. Boosted brakes, o.d., skirted fenders. Drives beautifully. $350. Robert B. Duncan, 603 Linwood St., New Cumberland, Pa.

'34 PLYMOUTH 5-window cpe. Body, engine & running gear very good. Recently repainted black with orig. striping. Free-wheeling; coil spring front end. $275. Robert B. Duncan, 603 Linwood St., New Cumberland, Pa.

'29 PACKARD. Straight 8 engine in exc. cond. Orig. paint & uph. in good cond. Exc. Tropic Air heater. 2nd owner. Best offer. Craig Yelton, P.O. Box 157, Minocqua, Wis.

'48 LINCOLN V-12 sed. Black; body in all-orig. cond. Engine needs some work. O.d.; many priceless extra parts. 1st $450 cash takes all. Leland Rittenhouse, 204 E. Main St., Mount Morris, Ill.

'39 MERCEDES-BENZ 540-K 4-5-pass. 2-dr. conv. cabriolet. Gray; orig. leather. New Dunlop ww's, top & carpets. Recently rebuilt engine, low mileage. $9000 firm. Robert A. Wilson, M.D., 90 8th Ave., Brooklyn 15, N.Y. Phone ST 3-2626, 8:00-10:00 P.M.

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'36-'37 CORD SERVICE BULLETINS. Over 200 pages, including complete parts list. $15. Norman M. Doyle, 10824 W. Estates Dr., Cupertino, Calif.

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'37 CORD supercharged 4-dr. sed. New tires & paint. Exc. cond.; orig. 40,000 kilo. Sell for $1550 or swap '57-'58 Thunderbird or Porsche. V. Feiler, Box 333, West New York, N. J.

CORD 812 phaeton. Black with 6-ply ww's. External pipes, rechromed—85% restored. Plus 2 tons of parts. Best cash or sportscar offer. Pix 50c. Ray Austin, 3836 Bayshore Blvd., Brisbane, Calif.

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'39-'42 LINCOLN Zephyr conv.; will consider cpe. Prefer unrestored car with V-12. $25 reward for info leading to purchase. John S. Smith, 4021 Blackington, Flint 4, Mich.

'46-'53 RILEY 2.5-liter conv. Norman Spears, 1160 S. Forest, Denver 22, Colo.

'29-'35 PIERCE-ARROW conv. cpe. Completely or partially restored. Godwin G. Johnson, 23 Fallon St., Staunton, Va.

'35 OR '36 FORD cabriolet with roll-up windows, or rdstr. Bud Moore, P.O. Box 1131, Roanoke ,Va.

RIGHT REAR FENDER for '40 Chrysler 6 4-dr. sed. Raymond A. Armstrong, 11541 Hermosa Dr., Fullerton, Calif.

FOR '30 PACKARD 8 740 phaeton—have tonneau windshield; need mechanism which bolts to back of driver's seat and to windshield, also Packard trunk. Marland Adelson, Stromsburg, Neb.

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56.5 miles per gallon?!!

This was the highest figure that resulted from efforts of 47 entrants in the 1959 Mobil Mileage Rally, run over a 345-mile Southern California route that ranged from sea level to 5200 ft. For the first time in this annual economy test of imported cars, sportscars were included—and showed that sportscar fun and performance were not necessarily incompatible with good gas mileage. An Austin-Healey Sprite driven by James Parkinson topped the field with an amazing 56.50 mpg—nosing out even smaller displacement vehicles. As a matter of fact, the sportscars averaged 42.53 mpg compared to 37.10 for the economy four-passenger cars. Entries in all the classes averaged 38.42 mpg, but the average owner who uses his car for everyday driving and pays little if any attention to featherfoot driving techniques should not expect such figures. The Rally is a bitterly contested run in which only the most experienced and skilled drivers can hope to achieve such results, aided by engine tuning that sometimes sacrifices liveliness of performance. Listed below by place in class are the 45 finishers—two cars failed to finish.

1959 MOBIL MILEAGE RALLY RESULTS

PLACE	CAR	MPG
	CLASS A, under 750 cc	
1	Fiat 500	55.30
2	Fiat Abarth 750	49.16
3	NSU Prinz	48.67
4	Renault 4-CV	42.72
5	Citroen 2-CV	38.51
	CLASS B, 750 through 1099 cc	
1	Renault Dauphine	46.25
2	Lancia Appia	42.80
3	Austin A-40	42.24
4	Morris 1000	41.34
5	Triumph	38.61
6	Fiat 1100	38.43
7	DKW	36.69
8	Goliath	34.91
9	Skoda	33.73

PLACE	CAR	MPG
	CLASS C, 1100 through 1599 cc	
1	Volkswagen	43.67
2	Porsche	40.94
3	Austin A-55	39.21
4	Datsun	37.37
5	Simca Aronde	37.25
6	Fiat 1200	36.99
7	Opel	36.42
8	Morris Oxford	34.38
9	Peugeot 403	34.33
10	Vauxhall	34.07
11	MG Magnette	32.63
12	Volvo	32.45
13	Hillman Minx	32.02
14	Toyopet Custom Crown	25.45
	CLASS F, Sportscars over 1600 cc	
1	Triumph TR-3	33.93
2	Mercedes-Benz 190	33.61
3	Austin-Healey	31.98

PLACE	CAR	MPG
	CLASS D, over 1600 cc	
1	Citroen ID-19	35.35
2	Taunus	31.86
3	Ford Consul	29.15
4	Mercedes-Benz 180	28.34
5	Lancia Flaminia	27.63
6	Simca Vedette	22.40
	CLASS E, Sportscars under 1600 cc	
1	Austin-Healey Sprite	56.50
2	Berkeley 60	55.85
3	Zagato Fiat Abarth	52.97
4	Lotus Elite	49.70
5	Karmann-Ghia	47.38
6	Alfa Romeo	40.16
7	MGA	33.46
8	Simca	32.31

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RADIATOR SPECIALTY CO., Charlotte, No. Carolina

Radar

continued from page 67

can bounce from a hillock, distorting readings. Further, a radar is myopic. It records only the fastest car on a crowded highway, leaving it up to the monitoring officer to decide which car it is that's the fastest.

"The instrument," says one authority, "is useless on really crowded roads."

Further, if improperly sited (its beam sweeping all lanes, both going and coming), radar records the fastest car, regardless of its direction. Ineptly interpreted, it is entirely possible to attribute to a car in a westbound lane the speed of another in the eastbound.

Recently, I watched as a patrolman radioed ahead to his "catch" man, without once taking his eyes from the radar meter. Yet, without gandering the highway, he was only guessing which of the passing cars had actually violated the law. But if motorists are awed by radar's "invincibiliy," MOTOR TREND's survey confirms that also, apparently, are the courts . . . and the black-robed gentry who preside over justice.

A California jurist, for example, convicted a motorist for speeding, though the arresting officer, under oath, admitted he'd "checked the meter's accuracy by running a police car through its beam . . . at 60 mph." Yet, designers of speed meters privately concede that car-calibration is inaccurate. Only road calibration by tuning fork is both scientific and beyond reproach. A meter which may have recorded correctly yesterday—or even today at a spot 100 ft. down the highway—can't be taken as gospel unless re-checked before every setup.

In one of 1957's most publicized "radar" cases, the Virginia Supreme Court of Appeals reversed a lower court's conviction-by-radar. The higher court based its reversal on a patrolman's testimony that he'd "assumed" the device was calibrated, though he hadn't rechecked it when taking over the "beam" location from a fellow officer. The case—Clyde R. Royals vs. Commonwealth of Virginia—brought out the admission that Virginia State Police (like police in many states) still check their meters by comparing speeds registered on a police car's speedometer. Oddly, the court failed to challenge—or even note—so questionable a practice.

Withal, radar—the more than 3000 speed meters patrolling highways in all 48 states—is doing yeoman service for safety's sake. Radar accounts for fully 20 per cent of all speeding arrests. New Mexico reports its state police wield radar in 80 per cent of speed apprehensions; Wisconsin, 78 per cent; and Mississippi, 70 per cent. On one stretch of Mississippi highway—between Clarksdale and the Tennessee line—radar is credited with cutting the death toll by 70 per cent. San Diego, Calif. police reported an eight mph reduction in speed along one accident-plagued highway when "Checked By Radar" signs were posted, though radar itself saw service along the road only a handful of days each month. In Wyoming, among the first states to monitor its highways by radar, average speed was cut by 10 mph (from 65 pre-radar, to 55 mph after roads were signed, radar publicized and spot arrests made). As early as 1955 (radar first hit the highways back in 1948), the New Jersey Turnpike Authority hailed radar as a life-saver . . . when, apparently, it cut the fatality rate by 50 per cent along this, one of the most heavily trafficked roads in America.

"A single radar unit," says one veteran highway patrolman, "can catch as many speeders as 10 officers in chase cars."

Speed meter manufacturers, in fact, stress the device's cost-cutting advantages. They point out, for example, that police commissioners reduced New York City's motorcycle corps from 465 to 150 officers when the department bought speed meters.

Currently, a few states are experimenting with unmanned radar: when the speeder crosses the radar's beam, a camera's shutter is tripped—photographing the car's rear (and its license). Negative developed, the offender is traced. Shortly, he receives a summons in the mail. Dumbstruck, most recipients meekly sign the summons (admitting their guilt) and return it . . . accompanied by a check.

New Hampshire, in one road test, put radar to work as a robot cop. The aim: to remind motorists to ease up on the pedal. Rigged to a giant electric sign, radar's beam actuated a pointer which, indicating the car's speed, also spelled out in red lights the warning, "This Is Your Speed *Now*. Slow Down!"

The accident rate dropped startlingly.

Usually, however, the motorist who spots a radar patrol and applies the brakes, applies them too late. One police detail, in fact, rigged a dummy radar a few hundred feet past the real McCoy (which was stashed out of sight). The object: to slow the motorist as he approached the "catch" man's post.

Once a patrolman has tagged his culprit, he all but writes off the offender as convicted. Presently, not one driver in a hundred contests radar's "all-seeing" eye. The few who do venture into court

find both the odds and the statistics heavily stacked against them. Chase-officers, for example, figure to convict only about 80 per cent of the motorists they ticket. "Beam" officers—their testimony corroborated by radar—are racking up convictions 98 times out of every 100.

Police are understandably elated. "We have in radar," one officer told MOTOR TREND, "a positive apprehender of the guilty." Others predict that with radar on our roads, traffic deaths may eventually dwindle to insignificance. But anti-radar spokesmen point to the nation's ever-rising highway toll (more than 40,000 this year) and pooh-pooh the beams as merely roadside cash registers and as money-makers for local treasuries and sometimes for local politicians, elective or appointed. Still, few would argue that radar fails to catch many a heavy-footed culprit. Nor that radar, as both a tool of enforcement and traffic engineering, is valuable. By ridding our roads of speeders (if, in fact, radar can or does), the beams may save your life and mine . . . from violators who too often turn killers.

Even the American Automobile Association, at times outspoken in its condemnation of radar-sited speed traps, finds no fault with the instrument as a tool of traffic engineering. Said the AAA in its 1958 statement of policy, ". . . [we] . . . realize that such devices have proved successful in connection with realistic speed limits . . ." Yet an AAA-affiliate, the Auto Club of Southern California, only recently led a successful fight against radar's use by California State Highway patrolmen (police in scores of California cities ticket by radar, but not the Highway Patrol). Further, both the powerful Chicago Motor Club and the Wisconsin Automobile Club have denounced speed meters, warning that radar lends itself to "mass production speed traps."

The AAA's long-standing skepticism of radar as a tool of enforcement is based upon radar's growing—and unsavory—reputation as an instrument of entrapment and as an arbitrary fixer of speed limits.

"Radar," says one AAA spokesman, "converts a state's unrealistic *prima facie* speed limit into the *maximum* speed any motorist may drive without violating the law."

This requires a bit of explaining. Consider the *prima facie* speed limit in your own state . . . the 55- or 60-mph limit posted along your state roads. Literally, prima facie means "on first appearance." That is, on first appearance—and on

continued on page 77

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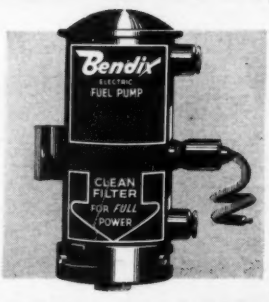

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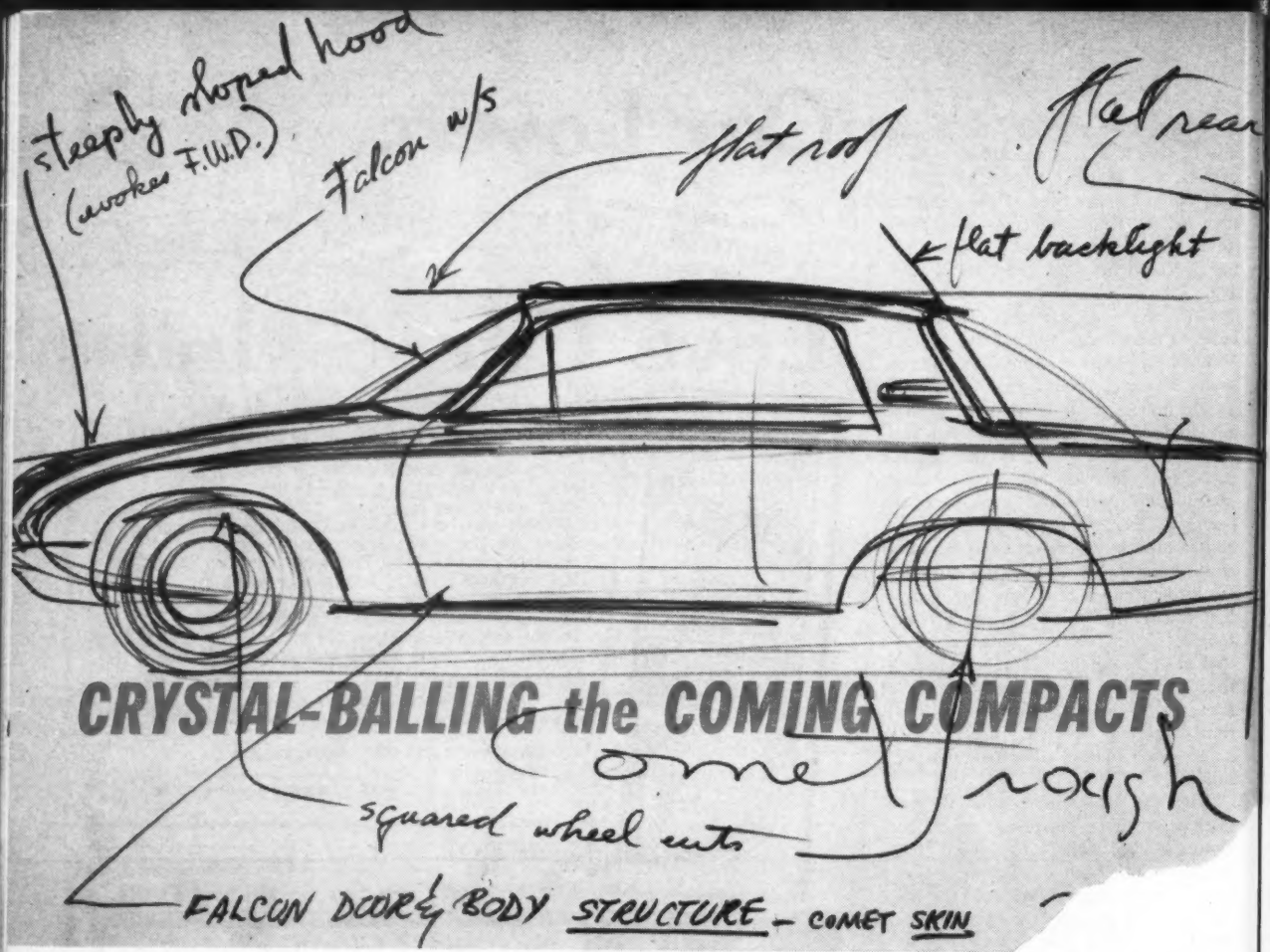
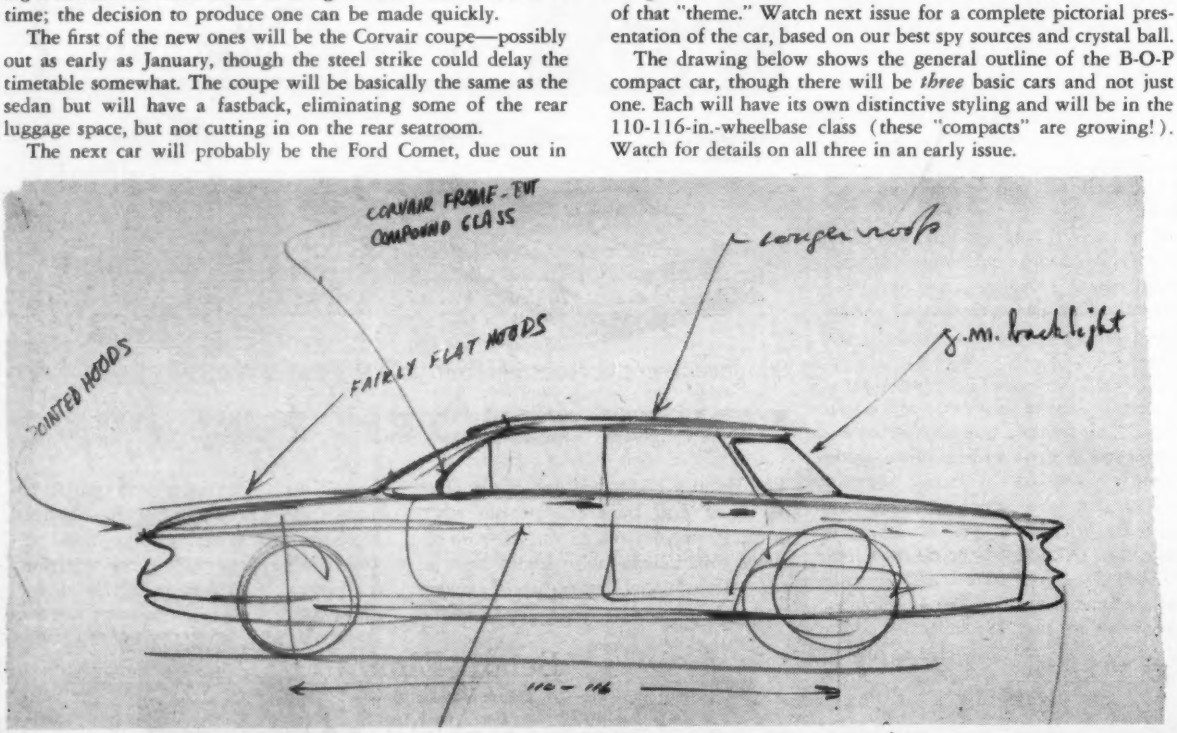


IT'S NO SECRET THAT MORE COMPACTS ARE COMING . . . it's only a matter of time and the question of whether there's really *that big* a market for them. Plans to bring out a new car take lots of time; the decision to produce one can be made quickly.

The first of the new ones will be the Corvair coupe—possibly out as early as January, though the steel strike could delay the timetable somewhat. The coupe will be basically the same as the sedan but will have a fastback, eliminating some of the rear luggage space, but not cutting in on the rear seatroom.

The next car will probably be the Ford Comet, due out in April. The first sketch appearing anywhere was the one in our December issue. Sources close to the project say that this showed the general outline and "theme." The sketch above shows more of that "theme." Watch next issue for a complete pictorial presentation of the car, based on our best spy sources and crystal ball.

The drawing below shows the general outline of the B-O-P compact car, though there will be *three* basic cars and not just one. Each will have its own distinctive styling and will be in the 110-116-in.-wheelbase class (these "compacts" are growing!). Watch for details on all three in an early issue.



Radar

continued from page 75

your state's law books—55 mph is the limit. Actually, however, it is seldom the maximum speed you're allowed to drive under ideal conditions. Local freeways and turnpikes may regularly flow at 60 and even 70 mph. Along unobstructed, country highways, drivers may safely travel at 65 mph. And most do. Nor do the police object. They realize as well as you that under ideal conditions a state's 55-mph prima facie limit is unrealistic. In fact, it may very well obstruct the smooth flow of traffic. Along comes radar, tagging every motorist exceeding the prima facie limit of 55 mph. And suddenly your state's posted limit is, in fact, the maximum speed that you—or any other motorist—may drive without being ticketed.

MOTOR TREND's survey indicates that radar has ruthlessly taken the law into its own hands. Has, in effect, become an all-powerful arbiter—policeman, judge and jury. As such, some say, it has lent itself to entrapment . . . to what the AAA condemns as "arbitrary and unwarranted . . . measures . . . which harass motorists . . ."

Hauled into court, you're faced with the cold facts . . . the graphed evidence taken from a speed meter which clocked you at 58 mph.

"But, Your Honor . . ." you stammer.

The judge bangs his gavel. "Mr. Jones," he rasps, "were you or were you not exceeding the posted speed limit?"

"Yes," you admit, "but only by three miles an hour, and besides, the road was clear and . . ."

The judge interrupts, "Then you admit to doing 58 mph?"

"Yes, but . . ." you protest.

"Guilty!" rules the judge.

In the same breath he has also established as your state's unequivocal *maximum* speed its posted, and oftentimes completely unrealistic, *prima facie* limit.

Now, no chase patrolman would, under normal road conditions, tag you for a violation which most maintain is no violation at all. The evidence might not stand up in court. Besides, rare is the officer who can swear that you were exceeding the speed limit by exactly three miles per hour. Lawyers can usually persuade a jury that such accuracies are above a speedometer's—or a mortal's—comprehension. They can also show that contributing circumstances forced the overspeed: you speeded up to pass a car; your speedometer wasn't accurate; you had only that moment crossed over the legal limit.

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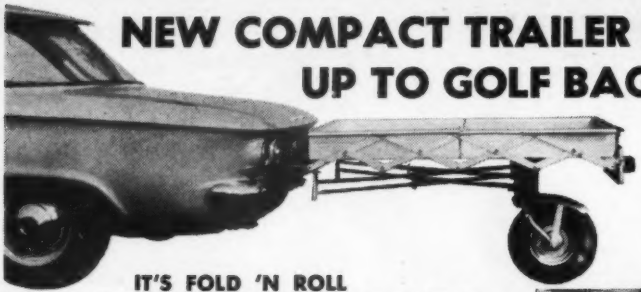

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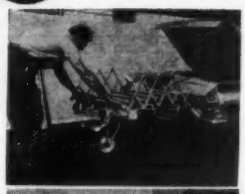

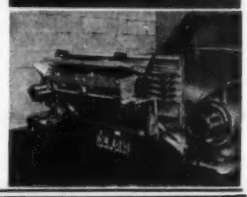

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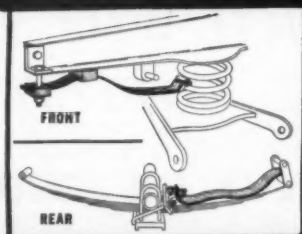

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New hydraulic equalizer increases brake efficiency by 40% and reduces costly brake repairs!

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Radar

continued

because its claimed accuracy is plus or minus two mph through its entire range (0 to 100 mph), it is taken in most courts as gospel. All of which has led even the most safety-minded experts to condemn radar as the unwitting tool of entrapment. Others put it more strongly.

Says one lawyer, "Wherever radar is used to enforce speed limits, it is used to trap and harass motorists."

Complains another, "The mere use of radar constitutes entrapment."

But courts in almost every state have ruled otherwise. Generally, the courts have said that when a radar unit is installed in a properly identified patrol car, parked in plain view beside the highway, and when manned by a uniformed officer assisted by an arresting officer (the "catch" man), no entrapment is involved.

Why such legalities over "entrapment?"

Well, on most statute books (particularly the Vehicle Code) is a long-standing law which defines—and outlaws—speed traps. Typical is Section 751 of the California Vehicle Code, prohibiting speed traps. In part it reads, "No peace officer . . . shall use a speed trap . . . or shall any speed trap be used in securing evidence as to speed of any vehicle for the purpose of an arrest or prosecution." Then, the California law (similar to Vehicle Codes in a score of states, including Oregon) defines "speed trap" as "a particular section of highway measured as to distance . . . in order that the speed of a vehicle may be calculated by securing the time it takes a vehicle to travel such known distance." Finally, the law firmly states that no evidence gathered by a speed trap shall be admissible in court. Radar, seemingly, constitutes "entrapment" . . . under California's law and under similar laws which, until recently, were on the books in no less than 30 states.

Faced with the obvious, some legislatures hastened to rewrite the law—clearing radar of the "entrapment" stigma. In general, radar was sanctioned so long as beamed highways were posted with both the state's speed limit and signs warning "Speed Checked By Radar" or "Speed Timed Electrically and by Radar."

Maryland, in 1953, became the first state to legalize speed meters. Virginia jumped on the radar bandwagon in 1954. In many other states, however, radar—along with other "entrapment" devices—is still illegal. Nonetheless, speed meters operate within—and yet often beyond—the law in all 48 states.

Typically, speed meters are still "traps" by California law. Yet hundreds of California cities ticket motorists by radar. The apparent contradiction is easily explained: legislators have never bothered to legalize radar, though local and even state courts have. In 1955, for example, the California anti-entrapment law was redefined by an Oakland, Calif. judge who declared that radar—and radar evidence—did not violate the state's statute. Immediately, scores of town cops queued up to buy speed meters. But not so the California Highway Patrol. The Patrol's commissioners huddled and decided that, until enabling legislation specifically authorized the use of speed meters, no highway patrolman would use them. Legislators have never seen fit to change the law. So California patrolmen still are radarless.

Actually, as in many states, California's legislators have been under heavy fire from the AAA's big guns. The AAA insists—and rightly—that before radar is legalized, speed limits be revised. What worries the AAA—and should worry you as a driver—is radar's penchant for setting an absolute and often arbitrary ceiling on speed. Additionally, the AAA believes that unless radar is fool-proofed and rigidly controlled, it will become a kind of budget-balancer . . . for many a community.

Recently, as though to confirm the AAA's worst fears, a speed meter salesman pitched his product as "more profitable to the city treasury than 100 parking meters."

"It'll pay for itself in two months," promised another radar merchant.

Neither apparently was in business to save lives, to make our roads safer. Brazenly—and openly—both hawked their cavity-brained robots as traps . . . as sure-fire money-makers. As a kind of roadside slot-machine set to pay off only to the house. And many a speed meter does . . . as witness that small town justice and his radar bought-and-paid-for home.

The fellow who keeps radar profitable is the hapless motorist who, only recently, has awakened to the truth . . . about radar speed traps. /MT

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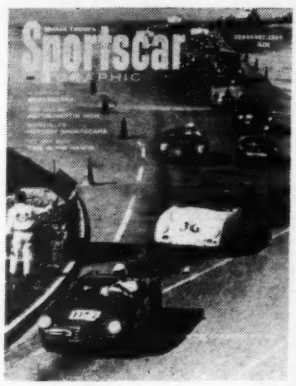

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Reg. $39.95 NOW..... $19.95 Each

Give the front end of your Ford, Chevrolet, or Thunderbird an entirely new, more beautiful look. Add sparkling, streamlined beauty. Grilles are custom tailored and contoured to harmonize with chrome trim, blend in perfectly with body lines. Tubes curve sharply back at each end to blend into grille opening. Grilles are complete with necessary mounting brackets, bolts and are already assembled. Easy to install—no alterations, cutting or welding necessary. Perfect fit guaranteed. GUARANTEED RUSTPROOF. Deluxe quality—heavier 3/4" diameter, 18 gauge heavy stainless steel tubing. Tubes used in these grilles are not solid but 2/3 of a full tube—open in back. Brackets have welded studs that match original grille mounting holes. No alterations required. New parking light housing supplied when necessary for installing lights behind grille (except 55-56 Chevrolet & Ford).

1959 FORD

1958 FORD & Thunderbird

1957 FORD

55-56 FORD

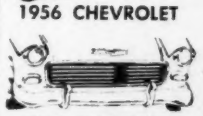
1952 FORD

1959 CHEVROLET

1958 CHEVROLET

1957 CHEVROLET

1956 CHEVROLET


1955 CHEVROLET

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I Enclose Check or Money Order for $19.95 plus $1.30 for shipping charges to cover payment in full (or 25% if C.O.D.). **Please do not send currency or stamps.** If C.O.D. order, enclose at least 25% deposit, pay balance plus shipping charges upon delivery.

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My car is a_____ Year____

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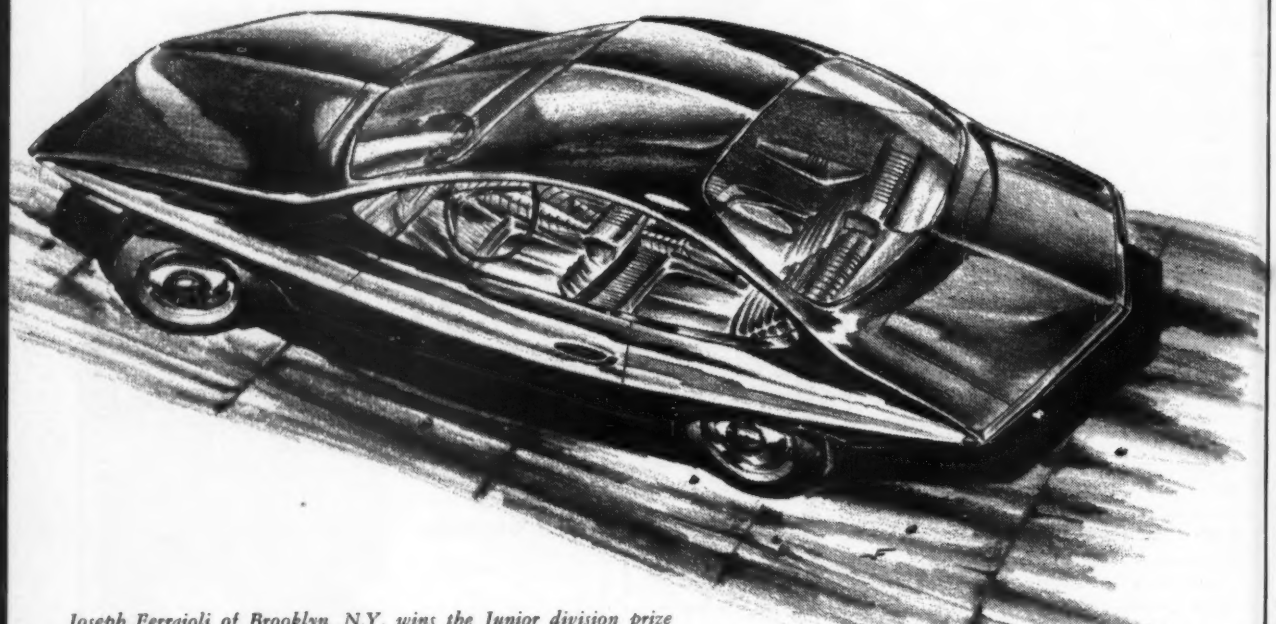
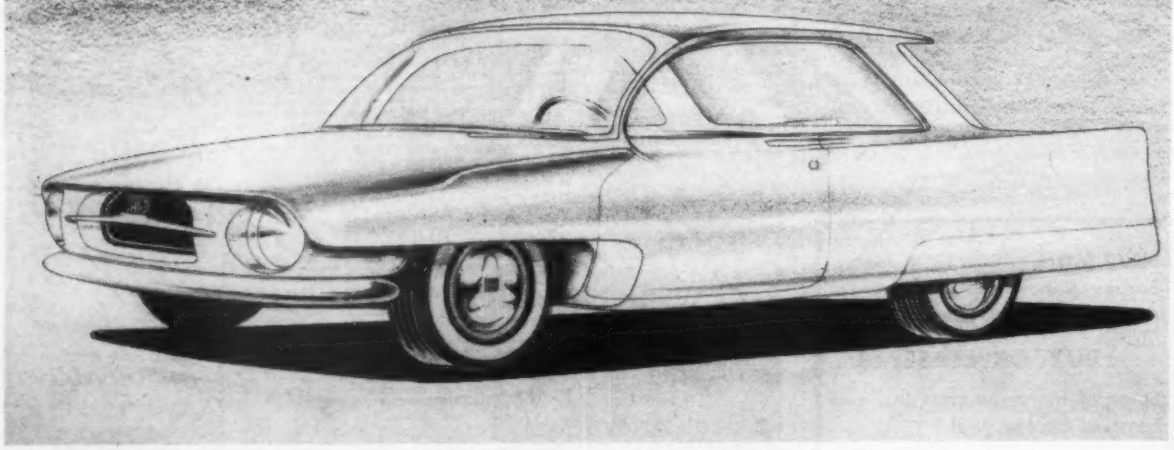
PROJECT IDEAS



Joseph Ferraioli of Brooklyn, N.Y. wins the Junior division prize with this design for a 4-passenger compact car. He has tried to "avoid the rectangular squared-off look of most U.S. cars, and stress gentle curves and sharp sculpturing on the side panels." Unit body has structural members running through the roof pillars.

Kent Hollinggard of Sweden designed this 4-passenger Saab Gran Turismo model, with water-cooled V4 engine developing 90 hp. Car has front-wheel drive, 4-speed synchro gearbox.



THE END of the Project IDEAS Custom Car Contest is drawing near—final entries must be postmarked before midnight, December 31, 1959. To be eligible in the final monthly selections—and to compete for the Grand Prize awards—entries must be mailed prior to the deadline.

For the benefit of latecomers, here is a review of the categories in which entries may be submitted:

1) An original automotive design sketch or detail drawing—for a complete car or for one or more components.

2) An original model car or a model built from any Revell (or other make) customizing kit.

3) Photographs of an actual full-size car that you have designed or customized.

There are three classes in which entries may be submitted: Apprentice Designer (entrants aged 13 or under); Junior Designer (entrants aged 19 or under); and Senior Designer (no age limit—open to all entrants).

Prizes for the final monthly judging are: Senior—$100 Savings Bond; Junior—$50 Savings Bond; Apprentice—$25 Savings Bond.

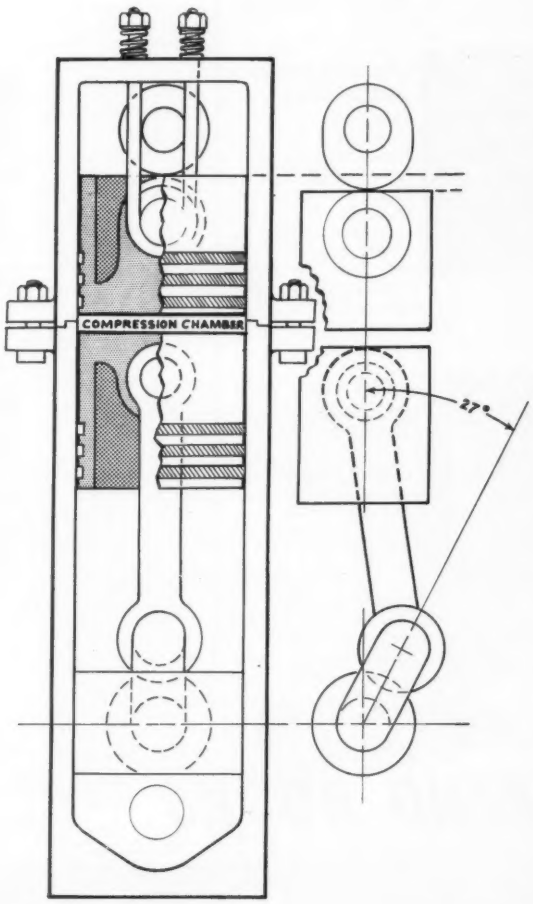
Grand Prize winners—to be chosen at the contest's conclusion from among the previous monthly winners—will receive the following awards: 1st Place—A 16 x 32-foot $3500 Esther Williams swimming pool; 2nd Place—An all-expense-paid trip for two to Washington, D.C.; 3rd Place—Brake linings for your car for the rest of your life.

Prizes are awarded jointly by Revell, inc., and MOTOR TREND.

If you haven't entered yet, send us your drawings (please mail them flat), your customized or original models (pack them carefully to avoid shipping damage), or photos of your full-size customized car (large, clear prints are advised). Be sure to include information about your car, model or drawing.

For Contest Entry Blank, Official Rules, or more information, write to:
PROJECT IDEAS
P.O. Box 272 Venice, California

Royal L. Riblet, 88-year-old contestant from Spokane, Wash., wins the Senior prize with his idea for a constant-compression-ratio engine that he designed in 1956, a working model of which he subsequently built. The main crankshaft chain drives a cam-actuated piston that increases or decreases volume of combustion chamber. Riblet's application is designed to maintain constant compression pressure until crank angle on firing stroke reaches 27 degrees past top dead center, eliminating need for variable spark advance. Principle is also applicable to variable compression ratio engine with upper piston controlled by vacuum or hydraulic torque on crankshaft. Design is for a 4-cycle engine.



Winner in the Apprentice Designer Class is 12-year-old Cliff Porter of Seattle, Wash., who submitted a neatly executed model of a rod-customized '32 Ford roadster. Engine is a "flashed up" Chrysler with dual carburetors.

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MISSILES AND SATELLITES is the newest, most authoritative book on man's recent attempts to conquer space. Chapters include the following: CROSS-SECTION OF U.S. DEFENSES; BATTLE OF PROPELLANTS; ELECTRONIC BRAINS AND METAL MUSCLES; SATELLITES; HIGHWAYS IN SPACE; MAN IN SPACE.

UNDERWATER ADVENTURE (TB-188)

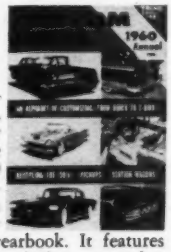
This book is more than a "how-to" manual—it combines skin diving instruction with thrilling tales of encounters with denizens of the deep. You get the facts on underwater hunting, competition diving, skin diving scientists, search and rescue work. In addition, you'll learn about SCUBA diving.

1960 HOT ROD ANNUAL (TB-190)

The most exciting collection of photographs of hot rods ever assembled under one cover keynotes the 1960 HOT ROD ANNUAL, latest edition of this enduring best-seller. Outstanding in both appearance and performance, these unusual cars are given the full pictorial treatment—photos from every angle, action shots, cutaway drawings and engine closeups!

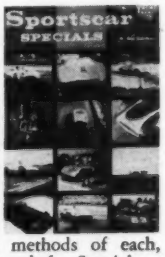
CUSTOM SHOW CARS (TB-181)

Presenting: the pick of the show customs, created by America's top customizers. Author George Barris reveals how he blends present with future in "Space Styled Customs." You'll go for his chapters on "Sketch-Pad Styling," "Customizing with Paint," "Pickups on Parade" and "Tricks with Fabric."



1960 CUSTOM CARS ANNUAL (TB-189)

Maine, Louisiana, Missouri, Nevada . . . customs from every state in the U.S. are arrayed in the 1960 CUSTOM CARS ANNUAL, latest edition of this perennially popular automotive yearbook. It features customs of every description, cars that illustrate the latest twists in customizing.



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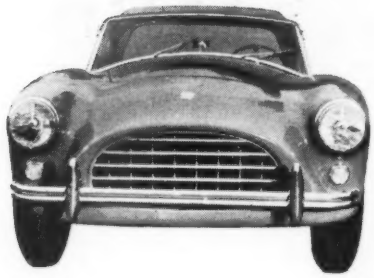

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